AALBORG UNIVERSITET

STUDIEORDNING FOR KANDIDATUDDANNELSEN I BY-, ENERGI- OG MILJØPLANLÆGNING, 2025

CIVILINGENIØR
AALBORG

MODULER SOM INDGÅR I STUDIEORDNINGEN

INDHOLDSFORTEGNELSE

SUSTAINABLE URBAN PLANNING

2025/2026

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

Students completing the module acquire the following:

LEARNING OBJECTIVES

KNOWLEDGE

- Knowledge and understanding of direct and indirect consequences of urban development from a sustainability perspective
- Knowledge and understanding of the complexities of planning for urban sustainability
- Knowledge of one or more fields within urban theory which is based on international academic research
- Understanding of the relation between theoretical basis, research design and research methods at a graduate level

SKILLS

- Can identify a relevant research problem and justify and substantiate the relevance of the chosen research problem from a sustainable urban planning perspective
- Can design a research project and use relevant research methods to analyse the chosen problem
- Can analyse and evaluate urban policies and plans in relation to their immediate as well as long-term contribution to sustainable urban development
- Can propose alternative urban policies and evaluate their potential contribution to urban sustainability
- Can in relation to urban development impart research-based knowledge and discuss professional and scientific problems with both colleagues and non-specialists
- Can apply a reference-handling software package to properly reference the project report (e.g. Mendeley or Refworks)
- Can plan and manage a study project in a PBL learning environment and reflect on the project process and identify development potentials for the next study project

COMPETENCES

- Can independently and critically manage work and development situations that are complex, unpredictable and require new solutions
- Can independently take responsibility for own learning, professional development and specialization
- Can independently structure project management activities and use online platforms for project management, communication and data management (e.g. Microsoft Teams)

TYPE OF INSTRUCTION

Problem-based project work in groups

EXAM

EXAMS

Name of exam	Sustainable Urban Planning
Type of exam	Oral exam based on a project
ECTS	20
Permitted 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	Bæredygtig byplanlægning
Module code	PLUPMK25101
Module type	Project
Duration	1 semester
Semester	Autumn
ECTS	20
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg
Responsible for the module	Kristian Olesen

ORGANISATION

Education owner	Master of Science (MSc) in Engineering (Urban, Energy and Environmental Planning)
Study Board	Study Board of Planning and Surveying
Department	Department of Sustainability and Planning
Faculty	The Technical Faculty of IT and Design

PLANNING HISTORY AND URBAN THEORY

2025/2026

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

Students completing the module acquire the following:

LEARNING OBJECTIVES

KNOWLEDGE

- Knowledge and understanding of the history of modern urban planning
- Knowledge and understanding of urban theory in different historical and geographical contexts of urban planning
- Knowledge and understanding of how different scientific value foundations shape the development of different urban theories
- Understanding of one or more contemporary urban theories on an international academic level
- Knowledge and understanding of how historical and contemporary global driving forces shape urbanization processes in different international contexts

SKILLS

- Can critically examine urban problems and challenges from a historical approach
- Can use urban theories to analyse historical and contemporary planning practices and identify contemporary and potential planning challenges
- Can identify the scientific value foundation of and assess the strengths and weaknesses of contemporary urban theories

COMPETENCES

- Can independently conduct research on the historical and contemporary development of cities and identify contemporary planning problems
- Can independently and critically apply urban theory to planning situations that are complex, unpredictable and require new solutions

TYPE OF INSTRUCTION

Lectures, workshops, seminars, assignments, etc.

EXAM

EXAMS

Name of exam	Planning History and Urban Theory
Type of exam	Written or oral exam
ECTS	5
Permitted 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	Planlægningshistorie og byteori
Module code	PLUPMK25102
Module type	Course
Duration	1 semester
Semester	Autumn
ECTS	5
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg
Responsible for the module	Kristian Olesen

ORGANISATION

Education owner	Master of Science (MSc) in Engineering (Urban, Energy and Environmental Planning)
Study Board	Study Board of Planning and Surveying
Department	Department of Sustainability and Planning
Faculty	The Technical Faculty of IT and Design

PLANNING FOR URBAN SUSTAINABILITY

2025/2026

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

Students completing the module acquire the following:

LEARNING OBJECTIVES

KNOWLEDGE

- Knowledge of the origins of different urban sustainability problems, and the different knowledge traditions for framing and approaching sustainability problems and their resolution
- Understanding of the complexities of contemporary urban planning in relation to challenges and possibilities of planning for urban sustainability
- Understanding of transformative changes that can constitute future directions for sustainable urban development
- Knowledge and understanding of different concepts, analytical methods, and tools for assessing planning visions and strategies from a sustainability perspective

SKILLS

- Can critically use relevant theories, concepts, analytical methods, and tools for assessing the qualities of planning visions
- Can analyse urban problems taking into consideration environmental and social conditions
- Can prepare concepts, proposals, and solutions to guide future sustainable urban planning objectives
- Can communicate research-based knowledge, including potential future planning solutions to both professionals and non-specialists

COMPETENCES

- Can independently use relevant theories, concepts, and methods to identify challenges and possibilities in relation to sustainable urban planning
- Can propose visions and strategies and take professional responsibility in relation to guiding future action towards a radical and sustainable transformation of society
- Can carry out focused, critical, and well-informed research to support the planning for sustainable cities

TYPE OF INSTRUCTION

Lectures, workshops, seminars, assignments, etc.

EXAM

EXAMS

Name of exam	Planning for Urban Sustainability
Type of exam	Written or oral exam
ECTS	5
Permitted 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	Planlægning for bæredygtige byer
Module code	PLUPMK25103
Module type	Course
Duration	1 semester
Semester	Autumn
ECTS	5
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg
Responsible for the module	Kristian Olesen

ORGANISATION

Education owner	Master of Science (MSc) in Engineering (Urban, Energy and Environmental Planning)
Study Board	Study Board of Planning and Surveying
Department	Department of Sustainability and Planning
Faculty	The Technical Faculty of IT and Design

POWER IN PLANNING

2025/2026

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

Students completing the module acquire the following:

LEARNING OBJECTIVES

KNOWLEDGE

- Knowledge of planning processes and an understanding of their relation to politics and power in the field of urban planning
- Knowledge and understanding of relevant concepts of power in the field of urban planning
- Knowledge and understanding of one or more urban planning theories on an international academic level
- Knowledge and understanding of the role of the planner in managing power relations
- Knowledge of theories of science and research methods relevant for conducting research within the field of urban planning

SKILLS

- Can identify questions about power and politics in urban planning research, and apply theories to justify the relevance of these questions for planning practice
- Can design a research project and use relevant research methods to analyse power in the practices of planning
- Can independently and critically develop concepts and methods for analysis of power in the practices of planning
- Can analyse and evaluate a planning process, and critically assess power dynamics in the practices of planning
- Can communicate research-based knowledge and discuss professional and scientific problems with both colleagues and non-specialists
- Can manage a study project in an interdisciplinary and intercultural PBL learning environment
- Can independently structure and reflect on project management activities and carry out subject specific and interdisciplinary study project
- Can apply coding software to analyse interviews and texts (e.g. Nvivo)

COMPETENCES

- Can independently and critically manage planning processes that are influenced by power dynamics
- Can independently start and implement a planning process through interdisciplinary cooperation while assuming professional responsibility
- Can independently reflect on and take responsibility for own learning, professional development and specialisation
- Can structure and design a project report e.g. through the use of Adobe InDesign.

TYPE OF INSTRUCTION

Problem-based project work in groups.

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	Power in Planning
Type of exam	Oral exam based on a project

ECTS	15
Permitted 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	Magt i planlægning
Module code	PLUPMK25201
Module type	Project
Duration	1 semester
Semester	Spring
ECTS	15
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg
Responsible for the module	Kristian Olesen

ORGANISATION

Education owner	Master of Science (MSc) in Engineering (Urban, Energy and Environmental Planning)
Study Board	Study Board of Planning and Surveying
Department	Department of Sustainability and Planning
Faculty	The Technical Faculty of IT and Design

THE DELIBERATIVE PLANNER

2025/2026

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

Students completing the module acquire the following:

LEARNING OBJECTIVES

KNOWLEDGE

- Knowledge and understanding of the institutional context and power relations within which the planner is working in practice
- Knowledge and understanding of professional values, democratic legitimacy, and the roles of the planner in an international and local context
- Understanding of professional individual conduct, actions and ethical frames *in* and *for* practices of the planner
- Thorough knowledge of the deliberative practices of the planner in dealing with conflict, and in managing the planning process through various and changing situations and differences in planning goals, agents and resources

SKILLS

- Can identify central challenges in professional planning practice
- Can make use of relevant theories, concepts and methods to analyse the practice of planning and critically evaluate the need for the planner to intervene in different contexts
- Can identify the core challenges in designing and managing deliberative planning processes to deal with power dynamics, conflicts and different interests

COMPETENCES

- Can design and engage with complex planning processes to manage conflicts and different interests
- Can reflect on and develop own professional ethics and procedures
- Can facilitate interdisciplinary collaboration and cooperation in a planning context and be able to reflect in action while assuming professional responsibility

TYPE OF INSTRUCTION

Lectures, workshops, seminars, assignments, etc.

EXAM

EXAMS

Name of exam	The Deliberative Planner
Type of exam	Written or oral exam
ECTS	5
Permitted 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	Den refleksive planlægger
Module code	PLUPMK25202
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	Kristian Olesen

ORGANISATION

Education owner	Master of Science (MSc) in Engineering (Urban, Energy and Environmental Planning)
Study Board	Study Board of Planning and Surveying
Department	Department of Sustainability and Planning
Faculty	The Technical Faculty of IT and Design

PLANNING THEORY

2025/2026

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

Students completing the module acquire the following:

LEARNING OBJECTIVES

KNOWLEDGE

- Knowledge of a broad spectrum of international planning theories
- Knowledge of the intellectual origins and scientific value foundations of different planning theories
- Understanding of one or more planning theories on an international academic level
- Understanding of the difference between theories *in* and theories *of* planning
- Knowledge and understanding of the role(s) of planning in society
- Knowledge and understanding of the role(s) of the planner in society

SKILLS

- Can assess the relevance of different planning theories in different planning contexts
- Can on a scientific basis evaluate the strengths and weaknesses of different planning theories
- Can relate international planning theory to contemporary planning problems and the practices of planning
- Can communicate research-based planning theory, and discuss professional and scientific problems related to planning theory with professionals as well as non-professionals

COMPETENCES

- Can independently and critically apply planning theory to work and development situations that are complex, unpredictable and require new solutions
- Can reflect on how different understandings of the role of planning in society can lead to the adoption of different planner roles in practice

TYPE OF INSTRUCTION

Lectures, workshops, seminars, assignments, etc.

EXAM

EXAMS

Name of exam	Planning Theory
Type of exam	Written or oral exam
ECTS	5
Permitted 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	Planlægningsteori
Module code	PLUPMK25203
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	Kristian Olesen

ORGANISATION

Education owner	Master of Science (MSc) in Engineering (Urban, Energy and Environmental Planning)
Study Board	Study Board of Planning and Surveying
Department	Department of Sustainability and Planning
Faculty	The Technical Faculty of IT and Design

THE SOCIO-TECHNICAL CONTEXT OF PLANNING

2025/2026

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

Students completing the module acquire the following:

LEARNING OBJECTIVES

KNOWLEDGE

- Knowledge of the context dependency of urban, energy and environmental problems
- Knowledge of links between technological development and theories for analysis of planning and decision-making processes
- Knowledge of how to apply insights from socio-technical theory in agency, better policy designs, and sustainability transition

SKILLS

- Can use the presented concepts and methods in a socio-technical approach in relation to analysis of real life cases of environment, energy and urban planning and policy creation/development
- Can use and develop socio-technical theoretical approaches, concepts and methods for the analysis of specific problems at an advanced level
- Can propose interventions based on socio-technical knowledge, and communicate knowledge derived from socio-technical theoretical approaches to both specialists and non-specialists

COMPETENCES

- Can critically and independently use and develop socio-technical approaches, concepts and methods of analysis in problem-based project work
- Can understand and act upon complex problems in planning and technology, based upon socio-technical analysis and informed delimitation
- Can reflect upon own practise with a starting point in socio-technical knowledge, and thereby continuously develop capacity for being a professional change agent

TYPE OF INSTRUCTION

Lectures, workshops, seminars, assignments, etc.

EXAM

EXAMS

Name of exam	The Socio-Technical Context of Planning
Type of exam	Written or oral exam
ECTS	5
Permitted 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	Planlægningens socio-tekniske kontekst
Module code	PGLBEMK17201
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	Poul Alberg Østergaard

ORGANISATION

Education owner	Master of Science (MSc) in Engineering (Urban, Energy and Environmental Planning)
Study Board	Study Board of Planning and Surveying
Department	Department of Sustainability and Planning
Faculty	The Technical Faculty of IT and Design

MASTER'S THESIS

2025/2026

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

Students may choose to combine the 3rd and 4th semesters into a long master's thesis (60 ECTS). If choosing to do a long master thesis, it has to include experimental work and has to be approved by the Study Board of Planning and Surveying. The amount of experimental work must reflect the allotted ECTS.

Students completing the project module acquire the following:

LEARNING OBJECTIVES

KNOWLEDGE

- Thorough knowledge of relevant theories and methods in relation to the chosen problem and can reflect on them
- Can describe the used theories so that the special characteristics of the theories are brought to light and in this way document understanding of the possibilities and limitations of the used theories within the concerned field of problems
- Have knowledge of the scientific-theoretical and methodical embeddedness of the used theories and can reflect on them
- Have thorough knowledge of the research embeddedness of the chosen problem, including knowledge of the most important national and international research in the field

SKILLS

- Can identify a research problem that is relevant for society
- Can give an account of the relevance to the education of the chosen problem, including a precise account of the core of the problem and the professional context
- Can independently plan and carry out a master's thesis on a high professional and academic level
- Can give an account of possible methods for solution of the problem formulation of the project, and describe and assess the suitability of the chosen method, including an account of chosen limitations and their importance to the results
- Can analyse and describe the chosen problem by using relevant concepts, theories and empirical investigations
- Can analyse and assess the results of empirical investigations, whether it is the student's own investigations or those of others, including an assessment of the importance of the investigation methods to the validity of the results
- Can point out relevant future strategies, possibilities of change and/or solution proposals
- Can impart knowledge of the problem to both professionals and non-professionals e.g. using social media platforms like Linkedin and Instagram

COMPETENCES

- Can form a synthesis between the professional problem, theoretical and empirical investigations and make a critical assessment of the synthesis formed and the other results of the project work
- Can independently, on the basis of the acquired problem, be part of interdisciplinary discussions and development work
- Can independently acquire the newest knowledge in the field and are on this background capable of continuously developing the professional skills and competencies

TYPE OF INSTRUCTION

Problem-based project work alone or in groups.

EXAM

EXAMS

Name of exam	Master's Thesis
Type of exam	Master's thesis/final project
ECTS	60
Permitted 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	PLBEMK22303
Module type	Project
Duration	2 semesters
Semester	Autumn
ECTS	60
Language of instruction	English
Location of the lecture	Campus Aalborg
Responsible for the module	Kristian Olesen

ORGANISATION

Education owner	Master of Science (MSc) in Engineering (Urban, Energy and Environmental Planning)
Study Board	Study Board of Planning and Surveying
Department	Department of Sustainability and Planning
Faculty	The Technical Faculty of IT and Design

PROFESSIONAL DEVELOPMENT

2025/2026

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

The students can choose to do a traditional project semester typically founded on subject knowledge from the 1st and 2nd semesters and/or prepare for the subject about which the student wish to write a thesis. The semester comprises the preparation of a scientific article or a project report.

The student can choose to integrate project-oriented study in an external organisation into the project module.
The project-oriented study in an external organisation is typically of three months' duration and has to be approved in advance by the semester coordinator on behalf of the Study Board.

The project module (with or without project-oriented study in an external organisation) must have a scope that corresponds the ECTS load.

Students completing the project module acquire the following:

LEARNING OBJECTIVES

KNOWLEDGE

- Must within the chosen field have knowledge based on the highest international research
- Can identify either a scientific or practical problem in a given complex context and relate the problem to knowledge within the field of study

SKILLS

- Can master the scientific methods and tools as well as general skills of the field in order to address the identified problem
- Can assess and choose among the scientific methods, tools and general skills of the field and draw up new models of analysis and solution
- Can synthesize the main issues in relation to a specific field concerning interventions and analyses, and outline recommendations for solutions or improvements
- Can discuss professional and scientific problems with both colleagues and non-specialists

COMPETENCES

- Can manage work and development situations which are complex, unpredictable and require new solution models
- Can take responsibility for own learning and reflect on the context within which the learning takes place

TYPE OF INSTRUCTION

Problem-based project work, possibly with project-oriented study in an external organisation integrated.

EXAM

EXAMS

Name of exam	Professional Development
Type of exam	Oral exam based on a project
ECTS	25
Permitted 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	Faglig udvikling
Module code	PLBEMK23302
Module type	Project
Duration	1 semester
Semester	Autumn
ECTS	25
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg
Responsible for the module	Poul Alberg Østergaard

ORGANISATION

Education owner	Master of Science (MSc) in Engineering (Urban, Energy and Environmental Planning)
Study Board	Study Board of Planning and Surveying
Department	Department of Sustainability and Planning
Faculty	The Technical Faculty of IT and Design

PROJECT MANAGEMENT FOR PLANNERS

2025/2026

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

Students completing the module acquire the following:

LEARNING OBJECTIVES

KNOWLEDGE

- must have knowledge about project management theories, models and tools
- must have knowledge about how to combine theories, models, and tools as well as the strength and weaknesses regarding these combinations
- must have knowledge about documentation requirements
- must have knowledge about project economy models
- must have knowledge about dialogue-based collaboration including conflict anatomy, the cycle of conflict, conflict development and psychological mechanisms in conflicts
- must have knowledge of typical pitfalls in project management and their solution strategies

SKILLS

- must be able to understand the basic principles in project economy
- must be able to carry out risk assessment
- must be able to create and close a project
- must be able to account for how critical phases and problems can be avoided or minimised

COMPETENCES

- must be able to plan, control and assist in leading large projects

TYPE OF INSTRUCTION

E-learning modules. Workshops

EXAM

EXAMS

Name of exam	Project Management for Planners
Type of exam	Written or oral exam
ECTS	5
Permitted 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	Projektledelse for planlæggere

Module code	PLBEMK23303
Module type	Course
Duration	1 semester
Semester	Autumn
ECTS	5
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg
Responsible for the module	Henrik Riisgaard

ORGANISATION

Education owner	Master of Science (MSc) in Engineering (Urban, Energy and Environmental Planning)
Study Board	Study Board of Planning and Surveying
Department	Department of Sustainability and Planning
Faculty	The Technical Faculty of IT and Design

MASTER'S THESIS

2025/2026

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

Students completing the project module acquire the following:

LEARNING OBJECTIVES

KNOWLEDGE

- Thorough knowledge of relevant theories and methods in relation to the chosen problem and can reflect on them
- Can describe the used theories so that the special characteristics of the theories are brought to light and in this way document understanding of the possibilities and limitations of the used theories within the concerned field of problems
- Have knowledge of the scientific-theoretical and methodical embeddedness of the used theories and can reflect on them
- Have thorough knowledge of the research embeddedness of the chosen problem, including knowledge of the most important national and international research in the field

SKILLS

- Can identify a research problem that is relevant for society
- Can give an account of the relevance to the education of the chosen problem, including a precise account of the core of the problem and the professional context
- Can independently plan and carry out a master's thesis on a high professional and academic level
- Can give an account of possible methods for solution of the problem formulation of the project, and describe and assess the suitability of the chosen method, including an account of chosen limitations and their importance to the results
- Can analyse and describe the chosen problem by using relevant concepts, theories and empirical investigations
- Can analyse and assess the results of empirical investigations, whether it is the student's own investigations or those of others, including an assessment of the importance of the investigation methods to the validity of the results
- Can point out relevant future strategies, possibilities of change and/or solution proposals
- Can impart knowledge of the problem to both professionals and non-professionals e.g. using social media platforms like Linkedin and Instagram

COMPETENCES

- Can form a synthesis between the professional problem, theoretical and empirical investigations and make a critical assessment of the synthesis formed and the other results of the project work
- Can independently, on the basis of the acquired problem, be part of interdisciplinary discussions and development work
- Can independently acquire the newest knowledge in the field and are on this background capable of continuously developing the professional skills and competencies

TYPE OF INSTRUCTION

Problem-based project work alone or in groups.

EXAM

EXAMS

Name of exam	Master's Thesis

Type of exam	Master's thesis/final project
ECTS	30
Permitted 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	PLBEMK22401
Module type	Project
Duration	1 semester
Semester	Spring
ECTS	30
Language of instruction	English
Location of the lecture	Campus Aalborg
Responsible for the module	Poul Alberg Østergaard

ORGANISATION

Education owner	Master of Science (MSc) in Engineering (Urban, Energy and Environmental Planning)
Study Board	Study Board of Planning and Surveying
Department	Department of Sustainability and Planning
Faculty	The Technical Faculty of IT and Design

SUSTAINABLE ENERGY PLANNING IN A TECHNICAL AND BUSINESS ECONOMIC PERSPECTIVE

2025/2026

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

Students completing the module acquire the following:

LEARNING OBJECTIVES

KNOWLEDGE

- Knowledge and understanding of the conditions and challenges in relation to energy problems of energy companies and organisations
- Knowledge of theories of science and research methods relevant for analysis of energy planning and ability of reflecting on them

SKILLS

- Can identify a relevant research problem within the field of energy planning and management
- Can design a research project and use relevant methods to analyse the chosen problem
- Can justify and substantiate the relevance of the chosen research problem based on relevant theories
- Can independently structure project management activities and carry out subject specific and interdisciplinary study project
- Can identify, analyse and assess the project-relevant energy problems and consequences
- Can prepare proposals for a specific energy infrastructure proposal
- Can understand, use and critically reflect on relevant quantitative and qualitative economic, sociological, environmental and/or engineering methods of analysis and uncover the interests connected to them
- Can independently collect relevant data in relation to specific problems and challenges as well as assess the quality and reliability of the data
- Can motivate, argue and communicate the general structure and methods of the project in a scientific-theoretical context
- Can relate critically to sources and use accurate source references
- Can communicate the result of the project work to selected target groups
- Can plan and manage a study project in a PBL learning environment
- Can apply spreadsheets for numerical analyses
- Can apply spreadsheets to make relevant numerical-based illustrations for the project
- Can apply a reference-handling software package to properly reference the project report (e.g. Zotero, Mendeley or Refworks)

COMPETENCES

- Can structure and handle the complex composition of specific challenges on an organisation/company level in the study and project work
- Can combine and compose the use of relevant theories, understandings, methods analyses so that they form a synthesis towards the preparation of specific strategies and plans directed towards organisation or company-level possibilities of working with sustainable energy solutions
- Can independently structure, initiate and participate in interdisciplinary energy planning on a company or organisational level
- Can independently take responsibility for own learning, professional development and specialisation
- Can reflect on the project process and identify development potentials for the next study project

TYPE OF INSTRUCTION

Problem-based project work in groups.

EXAM

EXAMS

Name of exam	Sustainable Energy Planning in a Technical and Business Economic Perspective
Type of exam	Oral exam based on a project
ECTS	20
Permitted 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	Bæredygtig energiplanlægning i et teknisk og virksomhedsøkonomisk perspektiv
Module code	PLSEPMK25101
Module type	Project
Duration	1 semester
Semester	Autumn
ECTS	20
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg
Responsible for the module	Poul Alberg Østergaard

ORGANISATION

Education owner	Master of Science (MSc) in Engineering (Urban, Energy and Environmental Planning)
Study Board	Study Board of Planning and Surveying
Department	Department of Sustainability and Planning
Faculty	The Technical Faculty of IT and Design

ENERGY PROJECT EVALUATION

2025/2026

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

Students completing the module acquire the following:

LEARNING OBJECTIVES

KNOWLEDGE

- Knowledge of energy-related environmental, economic and socially related problems
- Knowledge of business- and socio-economic impact analyses as well as the interaction with implementation and public regulation
- Knowledge of institutional and organisational conditions related to energy planning
- Knowledge of theories, evaluation methods and tools in relation to energy planning including environmental, economic, institutional and organisational problems

SKILLS

- Can assess and apply methods for energy project evaluation
- Can understand and reflect on connections between institutions and organisations, their dynamics as well as their interaction with the surrounding world
- Can assess application fields for evaluation methods, including critically assess results and conclusions on the basis of different methods

COMPETENCES

- Can reflect critically on choice of evaluation methods and the significance for analyses and results
- Can adjust and adapt relevant evaluation methods for the topical challenges

TYPE OF INSTRUCTION

Lectures, workshops, seminars, assignments, etc.

EXAM

EXAMS

Name of exam	Energy Project Evaluation
Type of exam	Written or oral exam
ECTS	5
Permitted 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	Energiprojektevaluering

Module code	PLSEPMK25102
Module type	Course
Duration	1 semester
Semester	Autumn
ECTS	5
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg
Responsible for the module	Poul Alberg Østergaard

ORGANISATION

Education owner	Master of Science (MSc) in Engineering (Urban, Energy and Environmental Planning)
Study Board	Study Board of Planning and Surveying
Department	Department of Sustainability and Planning
Faculty	The Technical Faculty of IT and Design

ENERGY SYSTEM ANALYSIS 1

2025/2026

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

Students completing the module, acquire the following:

LEARNING OBJECTIVES

KNOWLEDGE

- Knowledge of the energy system from energy supply via conversion to demand including fuels, renewable energy plants, conversion technologies, distribution technologies, demand and savings
- Knowledge of the operation of energy plants as well as evaluation methods and analysis tools for energy plants, including technical limitation, optimizing possibilities, environmental and economic consequences, involvement of externalities
- Knowledge of market conditions for energy plants

SKILLS

- Can simulate the operation of local energy systems with multiple dependent energy sources, energy conversion technologies and end-use energy demands
- Can optimise energy system operation against an external electricity market
- Can assess application fields for tools and methods, including critically assess results and conclusions on the basis of different tools and methods
- Can understand and reflect on energy systems analysis methods within the relevant areas
- Can use artificial intelligence tools to assist in the creation of energy system simulation models
- Can retrieve, handle and archive data in different formats

COMPETENCES

- Can reflect critically on economic incentive structures and choice of simulation approach and their significance for analyses and results
- Can adjust and adapt relevant energy system simulation approaches for the topical challenges

TYPE OF INSTRUCTION

Lectures, workshops, seminars, assignments, etc.

EXAM

EXAMS

Name of exam	Energy System Analysis 1
Type of exam	Written or oral exam
ECTS	5
Permitted 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	Energisystemanalyse 1
Module code	PLSEPMK25103
Module type	Course
Duration	1 semester
Semester	Autumn
ECTS	5
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg
Responsible for the module	Poul Alberg Østergaard

ORGANISATION

Education owner	Master of Science (MSc) in Engineering (Urban, Energy and Environmental Planning)
Study Board	Study Board of Planning and Surveying
Department	Department of Sustainability and Planning
Faculty	The Technical Faculty of IT and Design

SUSTAINABLE ENERGY PLANNING IN AN INSTITUTIONAL AND SOCIETAL PERSPECTIVE

2025/2026

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

Students completing the module acquire the following:

LEARNING OBJECTIVES

KNOWLEDGE

- Knowledge of the concrete economic, organizational and institutional context and its impact on energy issues in society
- Knowledge and understanding of the challenges and possible solutions linked to energy problems of society
- Knowledge and understanding of relevant tools and evaluation methods for the analysis of societal energy problems
- On a scientific basis ability to understand and reflect on energy planning on a societal level as well as to identify problems in this context

SKILLS

- Can identify and formulate societal energy problems in their relevant context
- Can formulate and analyse proposals for strategies within energy planning, which are based on an analysis of the societal context and conditions
- Can use and critically reflect on relevant quantitative and qualitative economic, sociological, and engineering methods
- Can scientifically motivate, argue and communicate the general structure and methods of the project. Must also be able to relate critically to sources and use accurate source references
- Can communicate research-based knowledge and discuss professional and scientific problems with both colleagues and non-specialists
- Can manage a study project in an interdisciplinary and intercultural PBL learning environment
- Can independently structure and reflect on project management activities and carry out a subject specific and interdisciplinary study project
- Can relate the project to the complex connections of UN's sustainable development goals
- Can apply graphics programmes to make relevant illustration(s) for the project

COMPETENCES

- Can structure and handle the complex combination of specific challenges related to energy planning on a societal level
- Can develop and combine relevant theoretical approaches, methodologies and analyses of policies, strategies or plans in relation to societal energy problems
- Can independently collect the relevant data and assess the quality and reliability of these data
- Can independently structure, start and participate in interdisciplinary planning tasks and cooperation across societal levels, nationalities and cultures
- Can independently reflect on and take responsibility for own learning, professional development and specialisation
- Can use online platforms for project management, communication and data management

TYPE OF INSTRUCTION

Problem-based project work in groups.

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	Sustainable Energy Planning in an Institutional and Societal Perspective
Type of exam	Oral exam based on a project
ECTS	15
Permitted 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	Energiplanlægning i et institutionelt og samfundsmæssigt perspektiv
Module code	PLSEPMK25201
Module type	Project
Duration	1 semester
Semester	Spring
ECTS	15
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg
Responsible for the module	Poul Alberg Østergaard

ORGANISATION

Education owner	Master of Science (MSc) in Engineering (Urban, Energy and Environmental Planning)
Study Board	Study Board of Planning and Surveying
Department	Department of Sustainability and Planning
Faculty	The Technical Faculty of IT and Design

SUSTAINABLE ENERGY POLICY AND PLANNING

2025/2026

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

Students completing the module acquire the following:

LEARNING OBJECTIVES

KNOWLEDGE

- Knowledge of energy policy and governance mechanisms, including their socio-technical context
- Knowledge of theoretical perspectives on the emergence of energy policies
- Knowledge of the variety of energy policy and governance in planning practice on multiple levels
- Knowledge of the implementation and effect of energy policy and governance mechanisms

SKILLS

- Can understand and reflect on the connection between context, policies, implementation and effects
- Can critically analyse energy policy and governance mechanisms on multiple levels
- Can understand the interplay between institutions and energy policies on multiple levels
- Can understand and critically assess energy planning processes and the implementation of policies

COMPETENCES

- Can outline policy and governance contexts relevant to energy planning
- Can identify and evaluate the need for new energy policy and government mechanisms
- Can independently propose adjustments to or creation of new energy policy and government mechanisms, including insights from techno-economic energy system scenarios and analyses

TYPE OF INSTRUCTION

Lectures, workshops, seminars, assignments, etc.

EXAM

EXAMS

Name of exam	Sustainable Energy Policy and Planning
Type of exam	Written or oral exam
ECTS	5
Permitted 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	Bæredygtig energipolitik og planlægning
Module code	PLSEPMK25202

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	Poul Alberg Østergaard

ORGANISATION

Education owner	Master of Science (MSc) in Engineering (Urban, Energy and Environmental Planning)
Study Board	Study Board of Planning and Surveying
Department	Department of Sustainability and Planning
Faculty	The Technical Faculty of IT and Design

ENERGY SYSTEM ANALYSIS 2

2025/2026

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

Students completing the module, acquire the following:

LEARNING OBJECTIVES

KNOWLEDGE

- Knowledge of technical and economic energy system analysis on a regional, national and international level, with emphasis on the integration of renewable energy, low-carbon technologies and energy efficiency
- Knowledge of various types of energy system analysis approaches and their application
- Knowledge of the interplay between different energy sectors and the strategies to achieve carbon neutral societies
- Knowledge of spatial analysis for energy planning, including resource, demand and infrastructure mapping

SKILLS

- Can analyse and assess consequences of the integration of large-scale renewable energy and various low-carbon energy technologies
- Can analyse and assess energy systems based on various evaluation criteria, including technical, economic, and environmental aspects
- Can use different spatial analysis methods to quantify, map and analyse energy resources, demands and infrastructures
- Can understand and analyse energy transition pathways to carbon neutral societies

COMPETENCES

- Can design and develop various energy scenarios based on energy system analysis and spatial analysis
- Can prepare proposals for national or regional energy system planning from technical perspectives and is able to link it with the relevant energy policy and governance contexts
- Can independently start and participate in interdisciplinary tasks and cooperation on an organisation level

TYPE OF INSTRUCTION

Lectures, workshops, seminars, assignments, etc.

EXAM

EXAMS

Name of exam	Energy System Analysis 2
Type of exam	Oral exam based on a project
ECTS	5
Permitted 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	Energisystemanalyse 2
Module code	PLSEPMK25203
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	Poul Alberg Østergaard

ORGANISATION

Education owner	Master of Science (MSc) in Engineering (Urban, Energy and Environmental Planning)
Study Board	Study Board of Planning and Surveying
Department	Department of Sustainability and Planning
Faculty	The Technical Faculty of IT and Design

SUSTAINABILITY MANAGEMENT IN ORGANISATIONS 2025/2026

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

Students completing the module acquire the following:

LEARNING OBJECTIVES

KNOWLEDGE

- **Comprehensive Understanding:** Demonstrate thorough knowledge of the framework conditions, challenges, and roles of enterprises and organizations in relation to sustainable development, including relevant tools and systems at the organizational level.
- **Theoretical Foundations:** Understand the relationship between theoretical bases, research design, and methodologies applicable to environmental management and sustainability management.
- **Research Design Proficiency:** Gain a thorough understanding of research designs pertinent to professional field(s), alongside the key theoretical foundations for research within the(se) area(s).

SKILLS

- **Research Problem Identification:** Independently identify relevant research problems within the field of environmental management and sustainability management.
- **Project Design and Methodology:** Design a research project that utilizes appropriate research methods to analyze and assess the identified problem and its implications.
- **Justification of Relevance:** Justify and substantiate the significance of the chosen research problem based on relevant literature.
- **Project Management:** Independently structure and manage project activities in both subject-specific and interdisciplinary contexts, particularly within a PBL learning environment.
- **Data Acquisition and Assessment:** Collect and apply relevant data concerning the project challenge, and critically assess the quality and reliability of these data sources.
- **Methodological Reflection:** Critically reflect on the use of quantitative and qualitative methods, articulating their appropriateness within the context of the project.
- **Communication and Argumentation:** Effectively communicate the structure and methods of the project, while demonstrating the ability to reflect critically on sources and utilize accurate referencing.
- **Application of Theories:** Utilize project-relevant conceptual frameworks to devise strategies and action plans for enhancing sustainability at the organizational level, and critically reflect on this use.
- **Analytical Proficiency:** Employ eg. spreadsheets for numerical analyses and create relevant numerical illustrations for the project.
- **Generative AI Utilization:** Assess the relevance of generative AI, and make appropriate choices abouts its use in the project context, ensuring ethical considerations and critical reflections are included.

COMPETENCES

- **Complex Problem Handling:** Structure and navigate complex combinations of specific challenges at the organizational level, integrating relevant conceptual frameworks, generative AI (where relevant), data collection methods, and models into a cohesive analytical framework.
- **Critical Reflection:** Reflect critically on project-related decisions regarding value bases and methodological choices, enhancing the quality and reliability of both personal and external research outputs.
- **Responsibility for Learning:** Take ownership of personal learning, professional development, and specialization, while continually acquiring new knowledge regarding advancements in theories of science and research design.
- **Developmental Reflection:** Reflect on the project process to identify areas for growth and improvement for future study projects.

TYPE OF INSTRUCTION

Problem-based project work in groups.

EXAM

EXAMS

Name of exam	Sustainability Management in Organisations
Type of exam	Oral exam based on a project
ECTS	20
Permitted 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	Organisationsrelateret bæredygtighedsledelse
Module code	PLEMSSK25101
Module type	Project
Duration	1 semester
Semester	Autumn
ECTS	20
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg
Responsible for the module	Henrik Riisgaard

ORGANISATION

Education owner	Master of Science (MSc) in Engineering (Urban, Energy and Environmental Planning)
Study Board	Study Board of Planning and Surveying
Department	Department of Sustainability and Planning
Faculty	The Technical Faculty of IT and Design

SUSTAINABLE CONSUMPTION AND PRODUCTION

2025/2026

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

Students completing the module acquire the following:

LEARNING OBJECTIVES

KNOWLEDGE

- Can define key concepts within sustainable consumption and production and explain their interrelationships
- Understanding of the basic characteristics and dynamics of product chains and networks

SKILLS

- Can summarise the range of local, regional and global initiatives that support implementation of sustainable consumption and production actions
- Can identify and classify case specific stakeholders and prescribe how to handle these
- Can identify relevant reference standards and legislative documents from international sources
- Can set policies and define objectives, targets and key performance indicators for specific organisations working for sustainability
- Can link sustainability policies at an organisation level (micro level) to internationally negotiated goals (macro or meta level) and assess their relevance
- Can apply relevant theories to analyse the existing innovation complex of specific cases
- Can apply relevant innovation strategies that involve different stakeholders (eg. co-creation, co-production etc.)
- Can apply relevant theories to analyse the relevance of different value creation models in specific cases to arrive at implementable, real-life action plans
- Can identify and critically reflect on the benefits and drawbacks as well as possible inherent contradictions of models, concepts and theories when applied to a specific issue

COMPETENCES

- Can interpret results and assess the applicability of certain tools in specific circumstances
- Can discuss opportunities and challenges for advancing sustainable consumption in specific contexts
- Can initiate transformation and co-operation processes among industries, individuals and social groups to become actors in a development process

TYPE OF INSTRUCTION

Lectures, workshops, seminars, assignments, etc.

EXAM

EXAMS

Name of exam	Sustainable Consumption and Production
Type of exam	Written or oral exam
ECTS	5
Permitted 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	Bæredygtigt forbrug og produktion
Module code	PGLEMSK17102
Module type	Course
Duration	1 semester
Semester	Autumn
ECTS	5
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg
Responsible for the module	Henrik Riisgaard

ORGANISATION

Education owner	Master of Science (MSc) in Engineering (Urban, Energy and Environmental Planning)
Study Board	Study Board of Planning and Surveying
Department	Department of Sustainability and Planning
Faculty	The Technical Faculty of IT and Design

SUSTAINABLE PRODUCTS AND SERVICES

2025/2026

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

Students completing the module acquire the following:

LEARNING OBJECTIVES

KNOWLEDGE

- Knowledge of the scientific theoretical and methodological basis of key analytical tools for environmental assessment of products
- Have thorough knowledge of key concepts in eco-design of products
- Knowledge of creativity in the eco-design process
- Basic knowledge of consumption practices and consumption volumes
- Knowledge of regulatory aspects for the development of sustainable products

SKILLS

- Can plan and carry out independently the quantitative life-cycle based environmental assessment of a given product
- Can shift from qualitative to quantitative representations of product systems, select and gather relevant data and information needed to calculate impact estimates for the product
- Can think creatively and to include elements of critical reflection to the eco-design of a product
- Can analyse and describe the eco-design process by using relevant theories and empirical investigations
- Can organise eco-design procedures for a specific product

COMPETENCES

- Can creatively develop solutions for the ecodesign of products that take into account the products' life cycle perspective
- Can interpret quantitative and qualitative environmental assessment results and use them in a product improvement and design context

TYPE OF INSTRUCTION

Lectures, workshops, seminars, assignments, etc.

EXAM

EXAMS

Name of exam	Sustainable Products and Services
Type of exam	Written or oral exam
ECTS	5
Permitted 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	Bæredygtige produkter og serviceydelser
Module code	PGLEMSK17103
Module type	Course
Duration	1 semester
Semester	Autumn
ECTS	5
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg
Responsible for the module	Henrik Riisgaard

ORGANISATION

Education owner	Master of Science (MSc) in Engineering (Urban, Energy and Environmental Planning)
Study Board	Study Board of Planning and Surveying
Department	Department of Sustainability and Planning
Faculty	The Technical Faculty of IT and Design

SUSTAINABILITY MANAGEMENT IN A SOCIETAL AND INSTITUTIONAL PERSPECTIVE

2025/2026

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

Students completing the module, acquire the following:

LEARNING OBJECTIVES

KNOWLEDGE

- Have thorough knowledge and understanding of institutional and social framework conditions, actors and challenges for sustainability management

SKILLS

- Can analyse and understand the handling of environmental problems on a societal level, including the integration of environmental policies, instruments and institutional aspects
- Can identify, analyse and assess project-relevant sustainability problems and consequences in an overall perspective
- Can formulate and analyse proposals for strategies within the environmental field which are based on an analysis of the technical and institutional conditions
- Can understand, use analytically and critically reflect on relevant quantitative and qualitative economic, sociological, environmental and/or engineering methods
- Can independently collect data in relation to relevant problems and assess the quality and reliability of the used data
- Can explain the general structure and methods of the project. Must also be able to reflect critically to sources and use accurate source referencing
- Can manage a study project in an interdisciplinary and intercultural PBL learning environment
- Can independently structure and reflect on project management activities and carry out subject specific and interdisciplinary study project
- Can apply graphics programmes like Adobe Illustrator, Visio or SketchUp to make relevant illustration(s) for the project

COMPETENCES

- Can combine relevant theories, understandings, methods and analyses to form a synthesis towards the preparation of specific strategies and plans directed towards institutional and social framework conditions
- Can independently reflect on and take responsibility for own learning, professional development and specialisation
- Can use online platforms for project management, communication and data management (e.g. Teams, Google Drive)

TYPE OF INSTRUCTION

Problem-based project work in groups.

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	Sustainability Management in a Societal and Institutional Perspective
Type of exam	Oral exam based on a project
ECTS	15
Permitted 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	Bæredygtighedsledelse i et samfundsmæssigt og institutionelt perspektiv
Module code	PLEMSSK22202
Module type	Project
Duration	1 semester
Semester	Spring
ECTS	15
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg
Responsible for the module	Henrik Riisgaard

ORGANISATION

Education owner	Master of Science (MSc) in Engineering (Urban, Energy and Environmental Planning)
Study Board	Study Board of Planning and Surveying
Department	Department of Sustainability and Planning
Faculty	The Technical Faculty of IT and Design

NATURAL RESOURCE MANAGEMENT

2025/2026

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

Students completing the module acquire the following:

LEARNING OBJECTIVES

KNOWLEDGE

- Knowledge of relevant national and international legislation for specific natural resources
- Understanding of measurement and indicator techniques for specific resource types
- Knowledge and understanding of rights, access and ownership models to natural resources (commons, leasing etc.)

SKILLS

- Can describe and explain the technologies used to extract and use specific natural resources
- Can discuss possible innovations and their applicability depending on framework conditions
- Can describe existing natural resource management approaches that are applied to use, protect and/or restore specific natural resources
- Can explain principles of sustainable use of marine, terrestrial and other resources

COMPETENCES

- Can analyse interrelated market dynamics between different resources using calculation models
- Can assess sustainability of specific management and consumption practices
- Can compare problems and strategies used in management of different natural resources in different settings

TYPE OF INSTRUCTION

Lectures, workshops, seminars, assignments, etc.

EXAM

EXAMS

Name of exam	Natural Resource Management
Type of exam	Written or oral exam
ECTS	5
Permitted 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	Forvaltning af naturressourcer
Module code	PGLEMSK17201

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	Henrik Riisgaard

ORGANISATION

Education owner	Master of Science (MSc) in Engineering (Urban, Energy and Environmental Planning)
Study Board	Study Board of Planning and Surveying
Department	Department of Sustainability and Planning
Faculty	The Technical Faculty of IT and Design

SUSTAINABILITY ASSESSMENT AND SOCIETAL DECISION PROCESSES

2025/2026

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

Students completing the module, acquire the following:

LEARNING OBJECTIVES

KNOWLEDGE

- Knowledge of different technical impact tools and methodologies applied for ex-ante sustainability assessment
- Knowledge and understanding about the socio-technical context in which ex-ante impact assessment is developed and used
- Knowledge and understanding of how impact assessment connects to societal decision-making on e.g. large infrastructures, technologies or spatial developments
- Can understand and reflect on decision-making theories

SKILLS

- Can choose impact assessment methods and tools for ex-ante sustainability assessment
- Can integrate technical analyses of bio-physical and social variables in the assessments and decision-making processes
- Can analyse and assess theoretical and practical problems, and develop and assess solutions that favour sustainable development
- Can communicate results of assessments to both other peers and non-specialists

COMPETENCES

- Can handle complex assessment situations
- Can participate critically and reflexively in impact assessment to secure more sustainable planning and decision-making at societal level

TYPE OF INSTRUCTION

Lectures, workshops, seminars, assignments, etc.

EXAM

EXAMS

Name of exam	Sustainability Assessment and Societal Decision Processes
Type of exam	Written or oral exam
ECTS	5
Permitted 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	Bæredygtighedsvurderinger og samfundsmæssige beslutningsprocesser
Module code	PGLBEMK17202
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	Kristian Olesen

ORGANISATION

Education owner	Master of Science (MSc) in Engineering (Urban, Energy and Environmental Planning)
Study Board	Study Board of Planning and Surveying
Department	Department of Sustainability and Planning
Faculty	The Technical Faculty of IT and Design

CLIMATE RESILIENT URBAN DEVELOPMENT: PROBLEMS AND CHALLENGES

2025/2026

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

Students completing the module acquire the following:

LEARNING OBJECTIVES

KNOWLEDGE

- Understanding of and the relation between theoretical bases, research design and research methods at a graduate level and within own professional field
- Understanding of the dynamics of climate change, the urban climate and their effects on the built, natural, and human environment
- Knowledge of synergies, conflicts, and complexities in climate resilient urban development
- Knowledge about the United Nations 2030 Goals for Sustainable Development (SDGs), and on the principles of how to achieve the SDGs
- Knowledge of multi-criteria assessment and the various methods and techniques used to conduct such assessments

SKILLS

- Can identify and justify a relevant research problem within the field of climate resilient urban development, and design a research project in order to analyse the chosen problem
- Can independently structure and manage project activities and carry out a subject specific and interdisciplinary study project in a PBL learning environment
- Can conceptualise and analyse the interaction between natural factors such as wind, water, and urban morphology, and the built environment
- Can conceptualise and analyse complex urban infrastructural, environmental, and socio-economic challenges and their interrelations
- Can develop a proposal for problem understanding that integrates engineering and design techniques with quantitative and qualitative data, for example through spatial and place-based analyses, and multi-criteria assessment
- Can critically assess the relevance of generative AI, and make appropriate choices abouts its use in the project context

COMPETENCES

- Can work with techniques for problem understanding in densified built environments that compile technical, spatial, social, environmental, and aesthetic qualities into an integrated challenge description
- Can evaluate, visualize, and communicate the challenges of climate resilient urban development, generally as well as specifically
- Can independently take responsibility for own learning, professional development and specialization, reflect on the project process and identify development potentials for the next study project

TYPE OF INSTRUCTION

Problem-based project work in groups.

EXAM

EXAMS

Name of exam	Climate Resilient Urban Development: Problems and Challenges
Type of exam	Oral exam based on a project
ECTS	20
Permitted 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	Klimarobust byudvikling: Problemer og udfordringer
Module code	PLCISUK25101
Module type	Project
Duration	1 semester
Semester	Autumn
ECTS	20
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg
Responsible for the module	Martin Lehmann

ORGANISATION

Education owner	Master of Science (MSc) in Engineering (Urban, Energy and Environmental Planning)
Study Board	Study Board of Planning and Surveying
Department	Department of Sustainability and Planning
Faculty	The Technical Faculty of IT and Design

CLIMATE CHANGE, ADAPTATION, AND THE CITY

2025/2026

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

LEARNING OBJECTIVES

KNOWLEDGE

- Must have knowledge of causes, development, and effects of climate change from global to local scale
- Must have knowledge on the principles of climate modelling
- Must have knowledge on the limitations of global climate models
- Must have knowledge on techniques for addressing climate change adaptation

SKILLS

- Must be able to obtain climate change predictions at the global and local scale
- Must be able to assess the impact(s) of climate change at the global and locale scale
- Must be able to able to assess the similarities and differences of climate change in peri-urban and urban settings

COMPETENCES

- Must have the competence to compile climate predications for an area of interest
- Must have the competence to summarise and present climate predictions to a non-specialist audience
- Must have the competence to use climate predications when developing local climate action plans

TYPE OF INSTRUCTION

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

EXAM

EXAMS

Name of exam	Climate Change, Adaptation, and the City
Type of exam	Written or oral exam
ECTS	5
Permitted 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	Klimaforandringer, tilpasning og byen
Module code	PLCISUK25102
Module type	Course
Duration	1 semester

Semester	Autumn
ECTS	5
Language of instruction	English
Location of the lecture	Campus Aalborg
Responsible for the module	Martin Lehmann

ORGANISATION

Education owner	Master of Science (MSc) in Engineering (Urban, Energy and Environmental Planning)
Study Board	Study Board of Planning and Surveying
Department	Department of Sustainability and Planning
Faculty	The Technical Faculty of IT and Design

CLIMATE RESILIENT URBAN DEVELOPMENT: DESIGNS AND SOLUTIONS

2025/2026

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

Students completing the module acquire the following:

LEARNING OBJECTIVES

KNOWLEDGE

- Thorough knowledge of research designs within own professional field
- Thorough knowledge of theories and methods linked to design thinking, including co-creation, co-design, and co-production
- Knowledge of the importance of contemporary infrastructures to the functionality of cities
- Knowledge of the technical factors shaping and forming the contemporary urban systems in their social context
- Knowledge of the adequate functional and technical solutions to sustainability challenges within the contemporary city
- Knowledge about the role and contribution of own discipline to the achievement of the SDGs
- Knowledge of the value of measuring progress on the SDGs

SKILLS

- Can apply theories and methods relevant to the design and development of smarter systems and infrastructures for a climate resilient urban development
- Can evaluate solutions presented in the field and assess their values seen in the light of urban design theories, methods and reference projects
- Can independently collect data in relation to identified problems and assess the quality and reliability of the used data in a solution-relevant context
- Can plan and design interventions relevant to identified challenges and problems with respect to climate resilient urban development
- Can independently carry out post-intervention analysis of developed solutions
- Can work with and visualize data using appropriate digital platforms
- Can explain the general structure and methods of the project
- Can reflect critically on sources and use accurate source referencing
- Can manage a study project in an interdisciplinary and intercultural PBL learning environment
- Can independently structure and reflect on project management activities and carry out subject specific and interdisciplinary study project

COMPETENCES

- Can combine relevant theories, concepts, methods and analyses to form a synthesis towards the preparation of specific strategies and plans directed towards institutional and social framework conditions
- Can differentiate between data sources and select the most appropriate source for different types of data
- Can create design proposals and concepts for smarter urban living and assess their implementation effects in relation to the SDGs
- Can reflect critically on project-related choices, including value bases, qualitative and/or quantitative research methods, and research design
- Can situate own discipline within an interdisciplinary context and relate to the SDGs
- Can lead and manage complex, multidisciplinary project with many stakeholders
- Can independently reflect on and take responsibility for own learning, professional development and specialisation

TYPE OF INSTRUCTION

Problem-based project work in groups.

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	Climate Resilient Urban Development: Designs and Solutions
Type of exam	Oral exam based on a project
ECTS	20
Permitted 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	Klimarobust byudvikling: Design og løsninger
Module code	PLCISUK25201
Module type	Project
Duration	1 semester
Semester	Spring
ECTS	20
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg
Responsible for the module	Martin Lehmann

ORGANISATION

Education owner	Master of Science (MSc) in Engineering (Urban, Energy and Environmental Planning)
Study Board	Study Board of Planning and Surveying
Department	Department of Sustainability and Planning
Faculty	The Technical Faculty of IT and Design

CITIES AND MOBILITIES

2025/2026

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 level at the Urban Design Engineering education.

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

The objective is to strengthen the students' ability to comprehend and analyze relevant infrastructural and technical factors shaping the contemporary network city. The course introduces state-of-the-art research-based theories relating to the development of the network city within urban theory, mobilities theory, network theory, and other relevant theoretical fields.

Students who complete the module:

LEARNING OBJECTIVES

KNOWLEDGE

- Must have proficient knowledge of the technical conditions shaping the network city, as well as their social consequences.
- Must be able to develop knowledge about the network city and its technologies as large technical systems.

SKILLS

- Must be able to apply the relevant scientific theories and methods in an analysis of the technological infrastructure systems of the network city.
- Must be able to evaluate proposals for intervention and design of the network city in light of state-of-the-art theories.

COMPETENCES

- Must demonstrate proficient competencies in analyzing the network city on a theoretical and methodologically reflective level.
- Must demonstrate proficient competencies in assessing technical solutions to traffic and mobility challenges of the network city.

TYPE OF INSTRUCTION

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

EXAM

EXAMS

Name of exam	Cities and Mobilities
Type of exam	Written exam
ECTS	5
Permitted 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	Byer og mobilitet
Module code	AODUM2K242
Module type	Course
Duration	1 semester
Semester	Spring
ECTS	5
Language of instruction	English
Location of the lecture	Campus Aalborg
Responsible for the module	Thomas Arvid Jaeger

ORGANISATION

Education owner	Master of Science (MSc) in Engineering (Urban Design)
Study Board	Study Board of Architecture and Design
Department	Department of Architecture, Design and Media Technology
Faculty	The Technical Faculty of IT and Design