AALBORG UNIVERSITET

STUDIEORDNING FOR KANDIDATUDDANNELSEN I BY-, ENERGI- OG MILJØPLANLÆGNING - 2017 - AALBORG

CIVILINGENIØR
AALBORG

MODULER SOM INDGÅR I STUDIEORDNINGEN

INDHOLDSFORTEGNELSE

THEORIES OF SCIENCE AND RESEARCH DESIGNS

2025/2026

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

Students completing the module, acquire the following:

LEARNING OBJECTIVES

KNOWLEDGE

- Understanding of the relation between theoretical basis, research design and research methods at a graduate level
- Thorough knowledge of research designs of own professional fields
- Thorough understanding the key theoretical foundations for research within the given planning field

SKILLS

- Can independently assess the value and reliability of own science production
- Can independently assess the value and reliability of others' research design and methodologies
- Can use research design and research methods within own fields at a graduate level
- Can impart knowledge of research designs to specialists as well as non-specialists

COMPETENCES

- Can reflect critically on project-related choices of value bases and methods
- Can reflect critically on choices of qualitative and quantitative research methods
- Can take responsibility for continuous professional development through acquisition of new knowledge of the development and renewal of theories of science and research designs

TYPE OF INSTRUCTION

Lectures, workshops, seminars, assignments, etc.

EXAM

EXAMS

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

FACTS ABOUT THE MODULE

Danish title	Videnskabsteori og forskningsdesign
Module code	PGLBEMK17101
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

THE COMPLEX CITY

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
- Knowledge and understanding of the complexities of planning for sustainable urban development
- Knowledge of one or more fields within urban theory which is based on international academic research
- Knowledge of theories of science and research methods relevant for conducting research within the field of urban planning
- Knowledge of the fundamental principles of Problem Based Learning (PBL) as implemented in the Aalborg PBL model at The Technical Faculty of IT and Design

SKILLS

- Can identify a relevant research problem within the field of urban planning
- Can design a research project and use relevant research methods in order to analyse the chosen problem
- Can justify and substantiate the relevance of the chosen research problem based on urban planning theories on an international academic level
- 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 an alternative urban policy and evaluate the potential consequences of this policy
- Can in relation to urban development impart research-based knowledge and discuss professional and scientific problems with both colleagues and non-specialists
- Can structure project management activities based on a well-formulated problem formulation

COMPETENCES

- Can independently and critically manage work and development situations that are complex, unpredictable and require new solutions
- Can independently start and carry out subject specific and interdisciplinary cooperation and take a professional responsibility
- Can independently take the responsibility for own professional development and specialisation
- Can reflect on, plan and manage a study project in a PBL learning environment

TYPE OF INSTRUCTION

Problem-based project work in groups

EXAM

EXAMS

Name of exam	The Complex City
Type of exam	Oral exam based on a project
ECTS	15
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	Den komplekse by
Module code	PGLUPMK17101
Module type	Project
Duration	1 semester
Semester	Autumn
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

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 the scientific value foundations of different urban theories
- Knowledge and understanding of urban theory in different historical and geographical contexts of urban planning
- Understanding of one or more contemporary urban theories on an international academic level
- Knowledge and understanding of the global driving forces shaping contemporary urbanisation 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

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
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	PGLUPMK17102

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

SUSTAINABLE URBAN PLANNING

2025/2026

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

Students completing the module acquire the following:

LEARNING OBJECTIVES

KNOWLEDGE

- Understanding of the complexities of contemporary urban planning in relation to challenges and possibilities such as sustainability, resilience and liveability
- Understanding of radical changes that can constitute future directions for international urban development
- Knowledge and understanding of different concepts, analytical methods and tools for assessing the qualities of planning documents

SKILLS

- Can critically use relevant theories, concepts, analytical methods and tools for assessing the qualities of planning documents and visions
- Can analyse urban problems taking into consideration economic, environmental and social conditions
- Can prepare concepts, proposals and solutions to guide future urban planning objectives
- Can communicate research-based knowledge and scientific problems and facilitate possible future planning solutions with both professionals (from a variety of fields) and non-specialists

COMPETENCES

- Can independently use relevant theories, concepts and methods to identify challenges and possibilities in relation to sustainable urban planning
- Can engage in interdisciplinary cooperation with other experts and the public in planning urban solutions and proposals and take a professional responsibility in relation to guiding future action
- Can carry out focused, critical and well-informed research to support the planning for sustainable and liveable cities

TYPE OF INSTRUCTION

Lectures, workshops, seminars, assignments, etc.

EXAM

EXAMS

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

FACTS ABOUT THE MODULE

Danish title	Bæredygtig byplanlægning
Module code	PGLBEMK17102
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

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

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 in order 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

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 take the responsibility for own professional development and specialisation

TYPE OF INSTRUCTION

Problem-based project work in groups.

EXAM

EXAMS

Name of exam	Power in Planning
Type of exam	Oral exam based on a project
ECTS	15
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	PGLUPMK17201
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 in order 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
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	PGLUPMK17202
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 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 independently apply planning theory in subject specific and interdisciplinary cooperation
- Can independently take responsibility for own professional development and specialisation

TYPE OF INSTRUCTION

Lectures, workshops, seminars, assignments, etc.

EXAM

EXAMS

Name of exam	Planning Theory
Type of exam	Written or oral exam
ECTS	5
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	PGLUPMK17203
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

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 project report or a scientific article.

The student can choose to integrate project-orientated work in an organisation into the project module. The project-orientated work in an organisation is typically of three months' duration and has to be approved in advance by the semester coordinator on behalf of the Study Board of Planning, Geography and Surveying.

Students completing the project module acquire the following:

LEARNING OBJECTIVES

KNOWLEDGE

- Must within the chosen field have knowledge based on the highest international research
- Must be able to understand and relate critically to the knowledge of the field and be able to identify either scientific problems or practical problems in a given complex context.
- Must have knowledge of basic project management principles a) applied at the internship site (for internship projects) or b) applied in organisations working in the field in general (for projects without internships)

SKILLS

- Can master the scientific methods and tools of the field as well as general skills in relation to the solution of the chosen 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
- Can reflect on own learning

For internship projects the following furthermore apply:

- Can compare project management principles at the internship site with approaches to project management applied in university project work
- Can give an account of experience within the practical work processes and methods gained in the specific context of the internship and is able to perform a critical evaluation of the applied work processes
- Can reflect on the significance of the interventions or analyses involved in during the internship, including purpose, strategic and/or political implications, and future use
- Can comprehend the organisational framework conditions under which the internship and the specific interventions or analyses take place

COMPETENCES

- Can manage work and development situations which are complex, unpredictable and require new solution models
- Can independently start and carry through professional and interdisciplinary cooperation and take a professional responsibility
- Can independently take responsibility for own professional development and specialisation

TYPE OF INSTRUCTION

Problem-based project work, possibly with internship integrated.

EXAM

EXAMS

Name of exam	Professional Development
Type of exam	Oral exam based on a project
ECTS	30
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	PGLBEMK17301
Module type	Project
Duration	1 semester
Semester	Autumn
ECTS	30
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

EXTENDED MASTER'S THESIS

2025/2026

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

Students may choose to combine the 3rd and 4th semesters into an extended master's thesis (60 ECTS). Extended theses are especially advised when working on project topics, where an extraordinary great generation of data is necessary. Theses (including extended theses) have to be approved in advance by the Study Board of Planning, Geography and Surveying, and the student has to fulfil the knowledge, skills and competencies as indicated for master's theses. See description of 4th semester.

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 independently plan and carry through a project at a high professional 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 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 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

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	Extended Master's Thesis
Type of exam	Master's thesis/final project
ECTS	60
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	Langt kandidatspeciale
Module code	PGLBEMK17303
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

MASTER'S THESIS

2025/2026

RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

Passed the three first semesters of the Programme in Urban, Energy and Environmental Planning

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 independently plan and carry through a project at a high professional 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 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 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

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	Oral exam based on a 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	PGLBEMK17401
Module type	Project
Duration	1 semester
Semester	Spring
ECTS	30
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

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

- Thorough knowledge and understanding of the framework conditions, challenges and roles in relation to energy problems of companies and organisations, including an ability to use tools and methods to analyse these
- Can understand and on a scientific basis reflect on energy planning on a business economic level and are able to identify scientific problems in this connection
- Knowledge of theories of science and research methods relevant for analysis of energy planning and ability of reflecting on them
- Knowledge of the fundamental principles of Problem Based Learning (PBL) as implemented in the Aalborg PBL model at The Technical Faculty of IT and Design

SKILLS

- Can identify, analyse and assess the project-relevant energy problems and consequences
- Can prepare proposals for a specific energy improvement proposal in relation to the realisation of the solution in a relevant company or organisation and seen in relation to relevant actors
- 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/challenges as well as assess the quality and reliability of these 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 structure project management activities based on a well-formulated problem formulation

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 initiate and participate in interdisciplinary energy planning on a company or organisational level
- Can reflect on, plan and manage a study project in a PBL learning environment

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	15
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	PGLSEPK17101
Module type	Project
Duration	1 semester
Semester	Autumn
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

ENERGY PROJECT EVALUATION

2025/2026

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

Students completing the module acquire the following:

LEARNING OBJECTIVES

KNOWLEDGE

- Thorough 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 critically analyse energy-related problems
- Can understand, use and analyse evaluation methods and tools for socio-economic impact analyses
- Can understand and reflect on connections between institutions and organisations, their dynamics as well as their interaction with the surrounding world
- Can understand energy-related environmental problems and analyse these
- Can assess application fields for evaluation methods and tools, including critically assess results and conclusions on the basis of different methods and tools
- Can understand and reflect on theories, evaluation methods and analysis tools within the relevant fields.

COMPETENCES

- Can reflect critically on project-related choices of tools and their significance for analyses and results
- Can adjust and adapt different tools for the topical challenges and needs

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
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	PGLSEPK17102
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

- Thorough knowledge of the energy system from energy supply via conversion to demand including fuels, renewable energy plants, conversion technologies, demand and savings
- Knowledge of the localisation aspects of energy systems
- 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 energy systems with multiple dependent energy sources, energy conversion technologies and end-use energy demands.
- Can optimise energy system operation against external energy markets
- 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 theories, methods and analysis tools within the relevant areas

COMPETENCES

- Can reflect critically on project-related choices of simulations and tools and their significance for analyses and results
- Can adjust and adapt different simulations and tools for the topical challenges and needs

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
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	PGLSEPK17103
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

- Thorough knowledge and understanding of framework conditions, challenges and roles in relation to energy problems of society, including an ability to use tools and evaluation methods to analyse them
- 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
- Thorough knowledge as to how the concrete economic, organizational and institutional context in different countries and cultures affect the energy situation as well as the technical and organisational possibilities of action within the energy field

SKILLS

- Can formulate and analyse proposals for strategies within energy planning, which are based on an analysis of the societal conditions
- Can understand, use and critically reflect on relevant quantitative as well as qualitative economic, sociological, environmental and/or engineering analysis methods and uncover the interests connected to these
- 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 the result of the project work to selected target groups

COMPETENCES

- Can structure and handle the complex combination of specific challenges related to energy planning on a societal level
- Can combine and compose the use of relevant theories, understandings, methods and analyses so that they form a synthesis towards the preparation of specific strategies and plans directed towards institutional and societal conditions and possibilities
- Can develop adequate theoretical approaches linked to specific problems/challenges and independently collect the relevant data and assess the quality and reliability of these data
- Can independently start and participate in interdisciplinary planning tasks and cooperation across societal levels, nationalities and cultures

TYPE OF INSTRUCTION

Problem-based project work in groups.

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

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	PGLSEPK17201
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 POLICIES

2025/2026

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

Students completing the module acquire the following:

LEARNING OBJECTIVES

KNOWLEDGE

- Thorough knowledge of international sustainable energy policies, including their origin and historical context
- Knowledge of theories on sustainable international energy policies
- Knowledge of the connection between international decision processes and sustainable national and/or international energy policies as well as the directly and indirectly involved actors
- Knowledge of the implementation and effect of sustainable international energy policies

SKILLS

- Can understand and reflect on the connection between context, policies, implementation and effects
- Can critically analyse sustainable energy-related problems in relation to national and international energy policies
- Can understand the interplay between institutions and sustainable energy policies
- Can understand and assess planning and the implementation of policies, including the connection between policies and institutions

COMPETENCES

- Can independently start and participate in interdisciplinary tasks and cooperation on an organisation level
- Can independently take the responsibility for own professional development and specialisation

TYPE OF INSTRUCTION

Lectures, workshops, seminars, assignments, etc.

EXAM

EXAMS

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

FACTS ABOUT THE MODULE

Danish title	Bæredygtige energipolitikker
Module code	PGLSEPK17202
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

- Thorough knowledge of technical and economic energy system analysis on a regional, national or international level, including a special focus on renewable energy and energy savings
- Knowledge of various types of energy system analysis models and their application
- Knowledge of technical, economic and environmental optimisation criteria in relation to energy planning and societal interests
- Knowledge of the connection between technical analyses, socio-economic consequences and public regulation

SKILLS

- Can analyse and assess consequences of the implementation of large quantities of renewable energy
- Can analyse the interplay between energy efficiency improvements (saving) and energy supply in a sustainability strategy
- Can analyse and assess energy systems from technical, economic and environmental criteria
- Can analyse and assess energy systems from a number of optimisation criteria, including possible conflicting interests
- Can assess applications for evaluation methods and tools, including critically assess results and conclusions on the basis of different methods and tools

COMPETENCES

- Can prepare proposals for technical system design and combine it with the design of public regulation and strategies in energy planning
- Can independently start and participate in interdisciplinary tasks and cooperation on an organisation level
- Can independently take the responsibility for own professional development and specialisation

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
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	PGLSEPK17203
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

CORPORATE SUSTAINABILITY MANAGEMENT

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 the framework conditions, challenges and roles of enterprises and organisations in relation to sustainable development, including also the tools and systems which are relevant on an organisation level
- Knowledge of the fundamental principles of Problem Based Learning (PBL) as implemented in the Aalborg PBL model at The Technical Faculty of IT and Design

SKILLS

- Can identify, analyse and assess project-relevant sustainability problems and consequences
- Can understand, use and critically reflect on relevant quantitative as well as qualitative methods of analysis
- Can independently procure relevant data in relation to the challenge and problem of the project and assess the quality and reliability of these data
- Can motivate, argue and communicate the general structure and methods of the project. Must also be able to reflect critically on sources and use accurate source referencing
- Can use project-relevant theories to structure plans and action for improved sustainability at organisation level
- Can structure project management activities based on a well-formulated problem formulation

COMPETENCES

- Can structure and handle the complex combinations of specific challenges at an organisation level (eg. business level)
- Can combine and compose the use of relevant theories, understandings, methods and models so that they form an analytical framework to be used when preparing specific strategies and plans adapted to the possibilities of the enterprise(s) or organisation(s).
- Can independently start and participate in interdisciplinary sustainability planning tasks and co-operation on an organisation level
- Can reflect on, plan and manage a study project in a PBL learning environment

TYPE OF INSTRUCTION

Problem-based project work in groups.

EXAM

EXAMS

Name of exam	Corporate Sustainability Management
Type of exam	Oral exam based on a project
ECTS	15
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	PGLEMSK17101
Module type	Project
Duration	1 semester
Semester	Autumn
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

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 use project-relevant theories of contexts to create policy design, plans and action for improved sustainability

COMPETENCES

- Can structure and handle the complex challenges related to sustainability
- 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 start and participate in interdisciplinary planning and engineering tasks.

TYPE OF INSTRUCTION

Problem-based project work in groups.

EXAM

EXAMS

Name of exam	Sustainability Management in a Societal and Institutional Perspective
Type of exam	Oral exam based on a project
ECTS	15
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	PGLEMSK17202
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

URBAN TRANSFORMATIONS AND SUSTAINABLE ENGINEERING

2025/2026

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

Students completing the module acquire the following:

LEARNING OBJECTIVES

KNOWLEDGE

- Understanding of the dynamics of the urban climate and its effects on the built environment
- Knowledge of environmentally and socially sustainable techniques for densifying the urban environment
- Knowledge of potential resources in the contemporary built environment as a catalyst to finding sustainable engineering and design solutions
- Knowledge of synergies and conflicts in climate change planning
- Knowledge of the fundamental principles of Problem Based Learning (PBL) as implemented in the Aalborg PBL model at The Technical Faculty of IT and Design

SKILLS

- Can analyse and conceptualise complex urban projects and environments from a number of perspectives related to the ‘compact city’, e.g. climate adaptation and mitigation, densification, re-use, inclusivity
- Can analyse the interaction between environmental factors such as wind, water and the built environment
- Can utilise theories and methods in order to analyse and evaluate contemporary built environments and notions of ‘compact cities’
- Can develop a proposal that integrates engineering techniques with conceptual and spatial design
- Can structure project management activities based on a well-formulated problem formulation

COMPETENCES

- Can work with techniques for adapting to climate change in densified built environments that compile technical, spatial, social and aesthetic qualities into an integrated design solution
- Can evaluate existing situations and utilise innovative and contemporary sustainable engineering techniques in the transformation of the built environment
- Can evaluate and communicate the effects of urban transformation as environmentally and socially sustainable
- Can reflect on, plan and manage a study project in a PBL learning environment

TYPE OF INSTRUCTION

Problem-based project work in groups.

EXAM

EXAMS

Name of exam	Urban Transformations and Sustainable Engineering
Type of exam	Oral exam based on a project
ECTS	15
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	Urbane transformationer og bæredygtighed
Module code	PGLCISK17101
Module type	Project
Duration	1 semester
Semester	Autumn
ECTS	15
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 model 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 climate change adaptation 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	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	Klimaforandringer, tilpasning og byen
Module code	PGLCISK17102
Module type	Course
Duration	1 semester

Semester	Autumn
ECTS	5
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

DESIGNING SMARTER CITIES

2025/2026

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

Students completing the module acquire the following:

LEARNING OBJECTIVES

KNOWLEDGE

- Knowledge of the importance of contemporary infrastructures to the functionality of cities
- Understand 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

SKILLS

- Can apply the theories and methods relevant to the design and development of (selected) smarter urban systems and infrastructures
- Can evaluate the solutions presented in the field and assess their values seen in the light of urban design theories, methods and reference projects
- Can establish skills in analysing the infrastructural challenges of the contemporary city applying relevant technologies and 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
- Can reflect critically on sources and use accurate source referencing

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 create design proposals and concepts for smarter urban living and assess their implementation effects

TYPE OF INSTRUCTION

Problem-based project work in groups.

EXAM

EXAMS

Name of exam	Designing Smarter Cities
Type of exam	Oral exam based on a project
ECTS	15
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	Design af smarte byer
Module code	PGLCISK17201
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	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

THEORIES OF THE NETWORK CITY AND ITS TECHNOLOGIES

2025/2026

RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

A BSc degree (Bachelor) in Architecture and Design or similar

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

The objective is to strengthen the students' ability to comprehend and understand the technical factors in their social context shaping contemporary network cities. This is done by introducing state-of-the-art scientific theories relating to the development of the network city within the fields of urban theory, mobility theory, network theory and other related theoretical fields.

Students who complete the module:

LEARNING OBJECTIVES

KNOWLEDGE

- Must have knowledge about the technical forces shaping the network city and their societal consequences
- Must be able to understand the basic factors behind the creation of the network city and its technologies
- Must be able to develop knowledge about the network city and its technologies as a 'large technical system'

SKILLS

- Must be able to apply the relevant scientific theories and methods related to 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 acquire competencies in analysing the network city on a theoretical and methodologically reflective level
- Must acquire competencies in assessing technical solutions to traffic and mobility challenges of the network city

TYPE OF INSTRUCTION

See general description of the types of instruction described in the introduction to Chapter 3

EXAM

EXAMS

Name of exam	Theories of the Network City and its Technologies
Type of exam	Written or oral exam
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	Teorier om netværksbyen og dens teknologier
Module code	AODUPM2K154
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, Energy and Environmental Planning)
Study Board	Study Board of Architecture and Design
Department	Department of Architecture, Design and Media Technology
Faculty	The Technical Faculty of IT and Design