AALBORG UNIVERSITET

STUDIEORDNING FOR KANDIDATUDDANNELSEN I BÆREDYGTIGT DESIGN, 2019

CIVILINGENIØR
KØBENHAVN

MODULER SOM INDGÅR I STUDIEORDNINGEN

INDHOLDSFORTEGNELSE

CONCEPTUALISATION OF SUSTAINABLE VALUE CHAINS

2019/2020

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

LEARNING OBJECTIVES

KNOWLEDGE

- has knowledge of the complexities and interrelations between product/service/system development and business development along value chains when bringing solutions to market
- has knowledge and understanding of design methods and their use
- has knowledge of the theories and methods of project management and the staging of design processes

SKILLS

- can carry out a theoretically informed empirical analysis of sustainable challenges related to current design and innovation of products and services
- can conceptualise ideas and design solutions across value chains
- can co-create a design solution and a reconfigured sociotechnical network of relations
- has the ability to identify and analyse the relevant technical knowledge necessary to understand the design problem and possible solutions
- is able to create an implementation plan for a design solution in relation to the organisational, business and market related aspects
- can professionally pitch a business idea based on a design solution

COMPETENCES

- can give a reflected criticism of others design work and results and suggest relevant design approaches
- can clearly present and communicate the content and outcome of the project academically and demonstrate the business perspectives and practical implications to collaborative partners in the field
- has ability to conceptualise design solutions and value chains across knowledge boundaries and technological domains based on theoretically informed empirical analysis.

TYPE OF INSTRUCTION

Project is carried out in groups of 4 to 5 students and planned in cooperation with an external partner. The project offers instructions in engineering design methods, ethnographical methods and qualitative interviews.

EXAM

EXAMS

Name of exam	Conceptualisation of Sustainable Value Chains
Type of exam	Written and oral exam
ECTS	15
Permitted 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	Konceptualisering af bæredygtige værdikæder
Module code	TBISDK17101
Module type	Project
Duration	1 semester
Semester	Autumn
ECTS	15
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Copenhagen
Responsible for the module	Andres Felipe Valderrama Pineda

ORGANISATION

Study Board	Studyboard for Techno-Anthropology and Sustainable Design
Department	Department of Planning
Faculty	Technical Faculty of IT and Design

DESIGN IN ORGANISATIONS

2019/2020

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

LEARNING OBJECTIVES

KNOWLEDGE

- has knowledge about current international research on theories and methods for organising design and innovation processes in organisations
- has knowledge about current international research on theories and methods for product and service development
- can recognise and use tools, methods and situations related to product and service development, and critically reflect on their value

SKILLS

- can understand and analyse ways of organising knowledge work in product and service development
- can understand interaction between design projects and other company functions, e.g. manufacture, technological developments, human resources, etc.
- is able to understand the role of social systems and political concerns, and analyse drivers and constraints imposed on design and innovation processes in organisations
- is able to understand the role of knowledge sharing, knowledge management and learning in product development
- can identify and use boundary objects in the staging of multidisciplinary dialogues
- can explain the significance in and for the involvement of different types of players in design processes
- can define research topics and questions, and analyse case studies with literature

COMPETENCES

- can independently manage design and development projects in organisations, and navigate the organisations' social systems and political concerns
- is able to critically reflect on their role as facilitator of design and innovation processes, and evaluate their performance

TYPE OF INSTRUCTION

Lectures, exercises and project work

EXAM

EXAMS

Name of exam	Design in Organisations
Type of exam	Written or oral exam The type of exam will be specified further in the semester description.
ECTS	5
Permitted 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	Design i organisationer
Module code	TBISDK17102
Module type	Course
Duration	1 semester
Semester	Autumn
ECTS	5
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Copenhagen
Responsible for the module	Andres Felipe Valderrama Pineda

ORGANISATION

Study Board	Studyboard for Techno-Anthropology and Sustainable Design
Department	Department of Planning
Faculty	Technical Faculty of IT and Design

MARKET CREATION

2019/2020

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

LEARNING OBJECTIVES

KNOWLEDGE

- can combine knowledge about sustainable innovation and design of 'things and objects' with knowledge about the market where things may be sold and consumed
- has knowledge of how markets can be constructed to incorporate 'more sustainable things and practices' and be part of solving the environmental challenges
- can explain fundamental concepts of neo-classical economics, the role of externalities and the associated view of markets as natural and pre-existing
- can explain fundamental concepts of from economic sociology on markets as constructions comprising market specific instituted arrangements that constitute legitimate goods, economic actors, and those involved in making or challenging market arrangements

SKILLS

- can assess the competitive situation of a product, a service or a system
- can describe the life of a product, service or system on the market and map out the processes it becomes part of
- can discuss how product, service and system design plays into the enactment of markets
- can assess how goods are valuated with prices and list of other qualities
- can discuss how consumers become able to calculate, compare and make judgments about goods
- can discuss and work out strategies for how different actors can shape rules, standards and regulations that become part of framing market arrangements for products

COMPETENCES

- can independently take part in discussions and reflections on how markets arrangements can facilitate more sustainable goods and market practices

TYPE OF INSTRUCTION

Reading and analysing texts, lectures, case-work, field study as well as group discussions

EXAM

EXAMS

Name of exam	Market Creation
Type of exam	Written or oral exam The type of exam will be specified further in the semester description.
ECTS	5
Permitted 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	Markedsskabelse
Module code	TBISDK17103
Module type	Course
Duration	1 semester
Semester	Autumn
ECTS	5
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Copenhagen
Responsible for the module	Andres Felipe Valderrama Pineda

ORGANISATION

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DESIGN STRATEGIES AS RESPONSES TO WICKED PROBLEMS

2019/2020

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

LEARNING OBJECTIVES

KNOWLEDGE

- has knowledge about different design strategies to tackle wicked problems
- can understand challenges concerned with ill-defined and working with complex problems both on a general level and at local levels

SKILLS

- can identify, characterise, and analyse a subject matter as the focus for the design process
- can apply different design strategies as a response to a wicked problem
- can develop or redesign sustainable business models seeking to support the subject matter
- can enrol interested parties in companies, governmental bodies and / or from civil society in a design process
- can use material objects to visualise and communicate project findings or to facilitate dialogue

COMPETENCES

- can reflect upon viable design strategies as a response to wicked and ill-defined problems and consider the possibilities in a design oriented approach
- can reflect upon viable ways of engaging and enrolling actors from a diversity of knowledge, institutional and business domains by taking into account the repertoire of design strategies

TYPE OF INSTRUCTION

Project assignment, carried out in groups of 4-5 students. The project should be planned in cooperation with a company, an institution or an interest group. Instructions on sustainable business models and project management will support the project work.

EXAM

EXAMS

Name of exam	Design Strategies as Responses to Wicked Problems
Type of exam	Written and oral exam
ECTS	20
Permitted aids	
Assessment	7-point grading scale
Type of grading	External examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Design strategier som respons på komplekse problemer
Module code	TBISDK17201
Module type	Project
Duration	1 semester
Semester	Spring
ECTS	20
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Copenhagen
Responsible for the module	Andres Felipe Valderrama Pineda

ORGANISATION

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Department	Department of Planning
Faculty	Technical Faculty of IT and Design

SUSTAINABLE TRANSITION

2019/2020

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

LEARNING OBJECTIVES

KNOWLEDGE

- has knowledge about and understands the fundamental ideas of transition theories based on the latest international research within the area
- understands the sustainability challenges faced by modern societies and how they are linked to processes which are embedded in existing social structures
- is able to recognise, analyse and characterise different perspectives within transition research e.g. systems innovation perspective, strategic niche management perspective, socio-technical regimes, multi-level perspective, sustainable governance strategies, practice oriented transition, arenas as situated mappings, transition management

SKILLS

- can discuss the sustainability challenges of modern societies
- can discuss strategies for sustainable transition and argue for personal opinions on the topic
- can develop design strategies to cope with different sustainability challenges using inspiration from transition theories

COMPETENCES

- is able to navigate in complex sustainable transition processes creating structuring and deploying design strategies

TYPE OF INSTRUCTION

A combination of lectures, exercises and a main cumulative task (a blog).

EXAM

EXAMS

Name of exam	Sustainable Transition
Type of exam	Written or oral exam The type of exam will be specified further in the semester description.
ECTS	5
Permitted aids	
Assessment	7-point grading scale
Type of grading	Internal examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Bæredygtig omstilling
Module code	TBISDK17202

Module type	Course
Duration	1 semester
Semester	Spring
ECTS	5
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Copenhagen
Responsible for the module	Andres Felipe Valderrama Pineda

ORGANISATION

Study Board	Studyboard for Techno-Anthropology and Sustainable Design
Department	Department of Planning
Faculty	Technical Faculty of IT and Design

STAGING PARTICIPATORY DESIGN

2019/2020

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

LEARNING OBJECTIVES

KNOWLEDGE

- has knowledge of the latest international research discussing staging processes and participatory design
- has insight of participatory design and co-design methods and can reflect on the possibilities of using these in design processes involving vulnerable actors
- has knowledge to critically reflect on the advantages and disadvantages of engaging different actors in design processes

SKILLS

- can design and use boundary objects when staging co-design processes with actors, including vulnerable actors
- can apply different methods to stage co-design processes
- can reflect on the difference between staging a dialogue ‘in situ’, or via a design lab

COMPETENCES

- is able to independently take professional responsibility of planning and staging co-design processes
- is able to critically reflect on own roles as facilitator of co-design processes

TYPE OF INSTRUCTION

Reading and analysing texts, lectures and cases, facilitating exercises etc,

EXAM

EXAMS

Name of exam	Staging Participatory Design
Type of exam	Written or oral exam The type of exam will be specified further in the semester description.
ECTS	5
Permitted 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	Iscenesættelse af participatorisk design
Module code	TBISDK17203
Module type	Course

Duration	1 semester
Semester	Spring
ECTS	5
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Copenhagen
Responsible for the module	Andres Felipe Valderrama Pineda

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DESIGN RESEARCH PROJECT

2019/2020

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

LEARNING OBJECTIVES

KNOWLEDGE

- has knowledge on how to set project goals and manage a design research project
- has knowledge of how to interact and relate with other actors within the design research project
- has knowledge on the recent research literature related to the specific research project

SKILLS

- can formulate a research aim
- can collect empirical material, analyse this and synthesise ideas and concepts in relation to a specific design research project
- can articulate goals, define tasks and coordinate tasks in project work
- can plan and stage the work based on the scope, the complexity and the required results
- can understand the practical, complex execution of design research processes
- can deliver and communicate a thorough design solution
- can evaluate the vulnerability of a design solution

COMPETENCES

- can independently take part in collaboration with other researchers and actors and define own role in the work
- can give a reflected criticism of others design work and results

TYPE OF INSTRUCTION

Project work with supervision.

EXAM

EXAMS

Name of exam	Design Research Project
Type of exam	Oral exam based on a project
ECTS	30
Permitted 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	Design projekt
Module code	TBISDK17301

Module type	Project
Duration	1 semester
Semester	Autumn
ECTS	30
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Copenhagen
Responsible for the module	Andres Felipe Valderrama Pineda

ORGANISATION

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PROJECT ORIENTED STUDY IN AN EXTERNAL ORGANISATION

2019/2020

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

LEARNING OBJECTIVES

KNOWLEDGE

- can identify important ideas and approaches in a number of current management, innovation and design concepts and reflect on these
- has knowledge on how to contribute in an organisation to set project goals, and work as part of a design team
- is able to identify and characterise concepts as an integrated part of organisational management, processes and change
- can understand perspectives on management concepts from political process theory, actor-network theory, symbolism and pragmatism

SKILLS

- is able to characterise the role of management and design concepts in the staging of change and design processes
- can analyse implicit problem diagnosis and related modes of operation in different management and design concepts and asses their effects
- can articulate problems and goals, and define and coordinate tasks for a design project work, and understand the principles for project definitions
- can identify and provide insights to the use of particular management and design concepts in the host organisation, and evaluate the vulnerability of these concepts
- is able to assess effects of various management, design and innovation concepts on knowledge flows and their ability to create change
- is able to analyse the use of management and design concepts in practice and suggest improvements in their staging and implementation

COMPETENCES

- can professionally engage in the planning and staging of concept driven processes, and independently take part in collaborating with other stakeholders in design, and define own role in this work
- can give a reflected criticism of own experiences with the use of management and design concepts, and on others design work and results, and the applicability of own competences in certain contexts

TYPE OF INSTRUCTION

Class instructions and supervision throughout the whole period of the project oriented study in the external organisation.

EXAM

EXAMS

Name of exam	Project Oriented Study in an External Organisation
Type of exam	Oral exam based on a project Evaluation of 1 written report and 1 written article followed by an oral examination, all on an individual basis.
ECTS	30

Permitted 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	Projektorienteret forløb i en virksomhed
Module code	TBISDK17305
Module type	Project
Duration	1 semester
Semester	Autumn
ECTS	30
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Copenhagen
Responsible for the module	Andres Felipe Valderrama Pineda

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Faculty	Technical Faculty of IT and Design

INTERNATIONAL DESIGN PROJECT

2019/2020

PREREQUISITE/RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

The module adds to the knowledge obtained in 'Staging participatory design'.

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

LEARNING OBJECTIVES

KNOWLEDGE

- has knowledge on how to set project goals, manage and stage an international design project in a multicultural environment
- has knowledge about personal responsibilities and risks for engaging in engineering work in multicultural environments

SKILLS

- can formulate a purpose for an international design project
- can identify the technical knowledge needed for a project, master it, and apply it to the project
- can navigate in complexities of different structures of power to develop a project
- can navigate the complex arrangement of NGOs, government institutions, and companies in the intervening country to arrange the necessary resources for the development of a design project
- can stage a participatory design project based on involving a variety of actors
- can synthesise ideas and concepts based on interactions with actors
- can balance off viewpoints and create a harmonic unity in a multi-cultural team
- can understand the practical, complex execution of international design processes and own role within these processes
- can deliver and communicate a thorough design solution
- can evaluate the vulnerability of concepts

COMPETENCES

- can independently engage and take responsibility in engineering work in multicultural environments
- can independently establish and conduct a working relationship with people from different cultures
- can reflect critically on the role of engineers in the context of globalization and with relation to sustainability

TYPE OF INSTRUCTION

Seminars and project work with supervision

EXAM

EXAMS

Name of exam	International Design Project
Type of exam	Oral exam based on a project
ECTS	30
Permitted 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	Internationalt design projekt
Module code	TBISDK17303
Module type	Project
Duration	1 semester
Semester	Autumn
ECTS	30
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Copenhagen
Responsible for the module	Andres Felipe Valderrama Pineda

ORGANISATION

Study Board	Studyboard for Techno-Anthropology and Sustainable Design
Department	Department of Planning
Faculty	Technical Faculty of IT and Design

MASTER'S THESIS

2019/2020

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

LEARNING OBJECTIVES

KNOWLEDGE

- has knowledge about and understanding of the latest international research in the fields of sustainability, design and innovation
- has knowledge about how to critically assess knowledge and identify problems with regards to sustainability, design and innovation, within the chosen subject

SKILLS

- can frame a design assignment or a sustainability challenge using professional tools and methods
- can motivate choices of methods or/and theoretical approach behind the design project
- can select appropriate research-based knowledge for use in the design process and has awareness regarding their value and limitations
- can argue for a solution with regards to it business potential
- can analyse market conditions (users, technologies, competitors etc.) and describe how own solution will perform in this market
- can stage design and innovation processes
- can communicate design and design proposals in a professional manner

COMPETENCES

- is able to present the results of the project work in a project report and during an oral examination and argue for the approach taken and the results
- is able independently to manage a project from start to finish and reflect on the processes, theories, methods and tools used

TYPE OF INSTRUCTION

Project work with supervision, seminars, etc.

EXAM

EXAMS

Name of exam	Master's Thesis
Type of exam	Oral exam based on a project
ECTS	30
Permitted aids	
Assessment	7-point grading scale
Type of grading	External examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Kandidatspeciale
Module code	TBISDK17401
Module type	Project
Duration	1 semester
Semester	Spring
ECTS	30
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Copenhagen
Responsible for the module	Andres Felipe Valderrama Pineda

ORGANISATION

Study Board	Studyboard for Techno-Anthropology and Sustainable Design
Department	Department of Planning
Faculty	Technical Faculty of IT and Design

DISTRIBUTED TECHNOLOGICAL DESIGN

2019/2020

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

LEARNING OBJECTIVES

KNOWLEDGE

- has obtained insight in selected exemplary technological domains and how they may contribute to realise sustainable design solutions
- has insight in existing design solutions and challenges within the exemplary domain
- has gained insight in the technical options and models used within the technical sciences in making solutions operational

SKILLS

- is able to identify resources in distributed networks of technical, economic and competence capabilities and concepts
- can analyse existing or new value chains and identify the organisational coordination and collaboration needed to realise changes within these
- can understand, analyse and make useful contemporary concepts like platforms, architectures, digitalisation as well as radical and distributed innovation and design

COMPETENCES

- is able to synthesise knowledge from a diversity of technological domains and discuss the possibilities for developing sustainable designs of distributed products and systems
- is able to consider conceptualisation strategies for design solutions across objects worlds and point at the challenges for creating temporary stabilised distributed networks
- is able to formulate requirements for a technology in order to obtain sustainable design solutions to a given problem

TYPE OF INSTRUCTION

Lectures, exercises, case analysis and dialogue with exemplary technological domains. The course is carried out in collaboration with diverse technological domains.

EXAM

EXAMS

Name of exam	Distributed Technological Design
Type of exam	Written or oral exam The type of exam will be specified further in the semester description.
ECTS	5
Permitted aids	
Assessment	Passed/Not Passed
Type of grading	Internal examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Distribueret teknologisk design
Module code	TBISDK17105
Module type	Course
Duration	1 semester
Semester	Autumn
ECTS	5
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Copenhagen
Responsible for the module	Andres Felipe Valderrama Pineda

ORGANISATION

Study Board	Studyboard for Techno-Anthropology and Sustainable Design
Department	Department of Planning
Faculty	Technical Faculty of IT and Design

DESIGN FOR SUSTAINABILITY

2019/2020

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

LEARNING OBJECTIVES

KNOWLEDGE

- has an understanding of the environmental, economic, and social implications of design and innovation
- has insights into various and diverse methodological approaches to sustainability assessment, eco-design and related design strategies
- has an understanding of various ontological and epistemological approaches in sustainability research.

SKILLS

- has ability to identify and discuss sustainability challenges as embedded in consumption and production networks of modern societies
- can analyse and apply various methods in designing for sustainability.
- can recognize key trade-offs and priorities in design processes
- has ability to demonstrate theoretically informed analyses of the challenges associated with designing for sustainability and with mobilizing networks of actors

COMPETENCES

- can analyse and address the challenges of designing sustainable products, technologies, or services
- can collaborate in developing viable design options and
- communicate about the sustainability of design

TYPE OF INSTRUCTION

Reading and analysing texts, lectures and cases.

EXAM

EXAMS

Name of exam	Design for Sustainability
Type of exam	Written or oral exam The type of exam will be specified further in the semester description.
ECTS	5
Permitted 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	Design for bæredygtighed
Module code	TBISDK17104

Module type	Course
Duration	1 semester
Semester	Autumn
ECTS	5
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Copenhagen
Responsible for the module	Andres Felipe Valderrama Pineda

ORGANISATION

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