AALBORG UNIVERSITET

CIVILINGENIØR, CAND.POLYT. I INNOVATIV KOMMUNIKATIONSTEKNIK OG ENTREPRENEURSKAB, 2018

CIVILINGENIØR
KØBENHAVN

MODULER SOM INDGÅR I STUDIEORDNINGEN

INDHOLDSFORTEGNELSE

SERVICES AND PLATFORMS

2021/2022

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

LEARNING OBJECTIVES

KNOWLEDGE

- Must have a holistic understanding of the ICT environment, i.e. the heterogeneous networks, Internet technologies and business models, on which ICT solutions and services rely
- Must have knowledge about the key Internet technologies and standards for content networking: representation, identification and transport
- Must have knowledge about the characteristics of different networks and the technologies that are important to provide a good user experience for a service
- Must be able to understand the service architectures, platforms and business models that are needed to provide future services and applications

SKILLS

- Must be able to specify requirements for innovative applications, services, solutions or service architectures based on a thorough analysis of the ICT environment and the needs of the target users
- Must be able to assess the network characteristics and limitations, which affect the delivery of content and services to the end users
- Must be able to discuss the technical and business-related aspects of services and service architectures
- Must be able to conceptually construct relevant business models

COMPETENCES

- Must have the competency to assess the viability and potential of new ICT-related technologies, frameworks and concepts
- Must have the competency to identify new business opportunities in relation to ICT services and service architectures

TYPE OF INSTRUCTION

Project work

EXAM

EXAMS

Name of exam	Services and Platforms
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	Services og platforme
Module code	ESNICTEK1P1
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	Ove Kjeld Andersen

ORGANISATION

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

COMMUNICATION AND BROADCAST NETWORKS

2021/2022

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

LEARNING OBJECTIVES

KNOWLEDGE

- Must have knowledge about digital broadcast networks (radio and TV):
  - Cable, satellite and terrestrial
- Must have knowledge about wired (broadband) networks:
  - xDSL, cable TV- and fibre-based infrastructures
- Must have knowledge about mobile and wireless networks:
  - 3G, 4G and beyond 4G
- Must have knowledge about development of networks leading to ‘future networks’ and ‘future Internet’
  - Including SDN, ICN, CDN
- Must be able to understand spectrum limitations and spectral efficiency
- Must have knowledge about advanced modulation and multiplexing techniques
- Must have knowledge about channel capacity, channel coding and compression techniques
- Must be able to understand converged infrastructures:
  - Combinations of distributive and communicative network platforms
- Must be able to understand the structural and service-oriented parameters that influence the development

SKILLS

- Must be able to explain the technical parameters, which drive the development of future networks
- Must be able to evaluate to what extent the future mobile and fixed networks complement or substitute each other
- Must be able to evaluate the strengths and weaknesses in the use of traditional mobile networks, wireless or broadcast networks for mobile TV/radio transmission.

COMPETENCES

- Must have the competency to identify and discuss the key technologies and standards for broadband and broadcast networks and the properties of networks that are essential for supporting services
- Must have the competency to analyse and assess the potential and limitations of existing and future broadband and broadcast networks, technologies and services and help develop new solutions and initiatives

TYPE OF INSTRUCTION

Types of instruction are listed at the start of Chapter 3.

EXAM

EXAMS

Name of exam	Kommunikations- og broadcast-net
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	Kommunikations- og broadcast-net
Module code	ESNICTEK1K1
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	Ove Kjeld Andersen

ORGANISATION

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

ENTREPRENEURSHIP, INNOVATION AND BUSINESS MODELS

2021/2022

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

LEARNING OBJECTIVES

KNOWLEDGE

- Must have knowledge on theories regarding business development based on communication, media and information technologies, including network economics, information economics, transaction costs analysis, and business ecosystems
- Must be able to understand theories on innovation and entrepreneurship

SKILLS

- Must be able to apply theories and methodological tools on specific company and technology cases
- Must be able to evaluate the application of business models in different business areas

COMPETENCES

- Must have the competencies to discuss the links between different design elements of business models: customer value, organisation, technology and financial issues
- Must have acquired the knowledge and skills to explain the key linkages between the different theories of the course, and use these critically in an analysis of market trends and business models
- Must have acquired the ability to combine knowledge on technological solutions with business development and business potential
- Must master theories and methodological tools to analyse and suggest appropriate and innovative business models for companies, which are offering communication, media and information services and products and using these solutions in their business operations

TYPE OF INSTRUCTION

Types of instruction are listed in § 17

EXAM

EXAMS

Name of exam	Entrepreneurship, Innovation and Business Models
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	Entrepreneurskab, innovation og forretningsmodeller

Module code	ESNICTEK1K2
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	Ove Kjeld Andersen

ORGANISATION

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

INTERNET TECHNOLOGIES AND SERVICE ARCHITECTURES

2021/2022

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

LEARNING OBJECTIVES

KNOWLEDGE

- Must have knowledge about the structure of the Internet and its design principles
- Must have knowledge about the key Internet technologies for content networking: representation, identification and transport
- Must have knowledge of mark-up languages and AJAX technologies, e.g. XML, JSON, HTML5, and JavaScript
- Must have knowledge about programming models and interfaces for Internet services, in particular REST, SOAP and Web Services
- Must have knowledge about the main protocols for messaging and streaming media, including session initiation and management
- Must be able to explain the concepts of “service”, “service enablers” and “service architectures”
- Must be able to understand the principles of Web 2.0 and their implications for services
- Must have knowledge of different methods for "enrichment" of services: User involvement, personalisation, use of context information, extracting value from large amounts of data, etc.
- Must have knowledge of the main standardisation bodies and the process of developing specifications and standards for Internet technologies
- Must have knowledge of common service architectures, e.g. Service Delivery Platforms, Service-Oriented Architecture (SOA), and cloud architectures

SKILLS

- Must be able to analyse and discuss the relation between user needs and different types of services
- Must be able to analyse the requirements that a given service imposes on servers, networks and terminals and their relation to the user experience provided by the service
- Must be able to design ICT services with distributed content, including controlled exposure of resources and access to these, and making use of state-of-the-art Internet technologies
- Must be able to design services for real-time messaging and streaming media
- Must be able to analyse and discuss the characteristics of different service architectures

COMPETENCES

- Must have the competency to assess the potential and applicability of state-of-the-art Internet technologies, programming models and architectures in order to realise a given functionality

TYPE OF INSTRUCTION

Types of instruction are listed at the start of Chapter 3.

EXAM

EXAMS

Name of exam	Internet Technologies and Service Architectures
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	Internet-teknologier og tjenestearkitekturer
Module code	ESNICTEK1K3
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	Ove Kjeld Andersen

ORGANISATION

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

APPLICATION DEVELOPMENT

2021/2022

PREREQUISITE/RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

The module builds upon knowledge obtained in the first semester project.

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

LEARNING OBJECTIVES

KNOWLEDGE

- Must have knowledge about appropriate methods for analysis, design, development and test of applications or services based on current or future ICT platforms
- Must understand how to develop application/services providing a good user experience
- Must have knowledge of the capabilities and functionalities of relevant software and hardware tools for application development

SKILLS

- Must have knowledge about mobile platforms, devices, and peripherals (sensors, tags, etc.) and their connectivity
- Must be able to make a well-founded requirement specification for an ICT service or solution, taking into account the target users, stakeholders, business aspects, state-of-the-art technologies and technical constraints
- Must be able to design a full-scale service and realise a more limited prototype of proof-of-concept in the project
- Must be able to reflect on the application development process and the final outcome
- Must be able to develop and test applications and services that can be deployed on ICT and media platforms and infrastructures
- Must be able to develop services with mobile and interactive media and context awareness
- Must be able to develop services including security and handling of personal data

COMPETENCES

- Must have the competency to identify user needs and system requirements in a wide variety of contexts
- Must have the competency to turn them into innovative applications and services building on state-of-the-art within the field of ICT

TYPE OF INSTRUCTION

Project work

EXAM

EXAMS

Name of exam	Application Development
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	Applikationsudvikling
Module code	ESNICTEK2P1
Module type	Project
Duration	1 semester
Semester	Spring
ECTS	15
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Copenhagen
Responsible for the module	Ove Kjeld Andersen

ORGANISATION

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

DEVELOPMENT OF ICT AND MEDIA SERVICES

2021/2022

PREREQUISITE/RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

Knowledge on object-oriented programming.

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

LEARNING OBJECTIVES

KNOWLEDGE

- Must be able to understand architectural issues such as the division of functions between terminal, server and networks.
- Must have knowledge about low-level service enablers in relation to Internet of Things, sensors, and smart actuators
- Must have knowledge about development platforms and environments, such as Software Development Kits (SDK), simulators, emulators, and Integrated Development Environment (IDE).
- Must have knowledge of web development tools, e.g. MEAN (MongoDB, Express.js, Angular.js and Node.js), RESTful programming models and JSP (Java Server Pages)/servlets
- Must have knowledge about basic artificial intelligence and pattern recognition algorithms and principles.
- Must have knowledge about platform programming and scripting, e.g. tablets, Raspberry Pi, Arduino, or Smart TV
- Must understand interface and communication concepts in relation to external servers, databases, and cloud-based services.

SKILLS

- Must be able to design and implement platform services/applications using high-level programming languages and development platforms.
- Must be able to perform platform programming and scripting (Raspberry Pi, Arduino, IoS, Smart TV, etc.).
- Must be able to use sensors and actuators to implement Internet of Things-related systems and devices.
- Must be able to use simple artificial intelligence algorithms in platform services and applications.
- Must be able to apply programming interfaces to communicate with and use external servers, databases, and cloud-based services.
- Must be able to design, develop and evaluate platform software components.
- Must be able to produce technical documentation.

COMPETENCES

- Must have the competency to design and develop viable ICT and media services that can address a wide range of user needs and provide a good user experience
- Must have the competency to compose more advanced service functionality using state-of-the-art software tools, Internet of Things, cloud architectures, sensors and simple artificial intelligence algorithms.

TYPE OF INSTRUCTION

Types of instruction are listed at the start of Chapter 3.

EXAM

EXAMS

Name of exam	Development of ICT and Media Services

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	Udvikling af IKT- og medietjenester
Module code	ESNICTEK2K1
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	Ove Kjeld Andersen

ORGANISATION

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

IDENTITY AND ACCESS MANAGEMENT

2021/2022

PREREQUISITE/RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

The module builds on knowledge obtained in the module “Internet technologies and service archi-tectures” or similar.

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

LEARNING OBJECTIVES

KNOWLEDGE

- Must be able to explain the concepts of security, privacy and trust
- Must be able to explain the concepts of attributes, claims, assertion and claims-based identities
- Must have knowledge about the principles and methods for access control, authentication, authorisation and identification
- Must be able to explain the key concepts and principles of identity management
- Must have knowledge of key management, certificates, tokens and credentials
- Must have knowledge about state-of-the-art principles and guidelines for protecting users’ privacy
- Must have knowledge of state-of-the-art technologies and frameworks for fine-grained management of personal attributes
- Must be able to understand the concepts of linkability and unlinkability and state-of-the-art principles for establishing trust
- Must have knowledge about security architectures, including policies and policy management
- Must have knowledge of national identity management frameworks such as NemID / MitID

SKILLS

- Must be able to discuss the differences between physical identities and online digital, virtual and partial identities
- Must be able to identify the personal attributes that are needed to perform a given task
- Must be able to apply methods for privacy protection, encryption, access control, authentication and authorisation as a part of service development, including privacy by design principles
- Must be apply to apply state-of-the-art technologies for realising advanced services with privacy protection, e.g. OAuth and OpenID Connect
- Must be able to analyse and design information flow and architectures for secure ICT services and solutions
- Must be able to design applications and services incorporating security elements (e.g. payment, authentication), different assurance levels, and management of user identities (authentication, authorisation, privacy protection)

COMPETENCES

- Must have the competency to design secure services and security architectures with controlled exchange of attributes between stakeholders and minimal disclosure of personal information
- Must be able to discuss and reflect on management of personal information for access to resources and for personalisation of services

TYPE OF INSTRUCTION

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

EXAM

EXAMS

Name of exam	Identify and Access Management

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	Identitets- og adgangshåndtering
Module code	ESNICTEK2K2
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	Ove Kjeld Andersen

ORGANISATION

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

ADVANCED ICT SOLUTIONS

2021/2022

PREREQUISITE/RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

The project builds on knowledge obtained during the first two semester projects.

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

LEARNING OBJECTIVES

KNOWLEDGE

- Must have knowledge about design and development of advanced ICT solutions, including knowledge about how the institutional and market-related circumstances interact with technology development, to take it into account in the design process
- Must have knowledge of algorithms for data processing and semantic analysis
- Must have knowledge about how ICT applications and solutions can be deployed in order to address specific needs and improve efficiency in different application areas

SKILLS

- Must be able to design and develop an ICT service or solution, including one or more of the following elements:
  - Handling of converged media content and digital rights management (DRM)
  - Acquisition and processing of sensor information, e.g. bio-signals
  - Handling of large amounts of data to extract relevant information, e.g. latent semantic analysis, machine learning techniques, or cluster analysis
  - Recommender systems
  - Advanced programming tools, e.g. graph databases, Ruby on Rails, or Hadoop
  - Complex usage scenarios including access control, resource management and privacy protection
- Must be able to develop advanced ICT services and solutions targeting a specific application domain and considering scalability, state-of-the-art technologies and the use of different devices, networks and platforms.
- Must be able to identify, select and apply suitable programming languages and software development strategies and justify their choices
- Must be able to undertake a thorough analysis of the chosen solution with respect to technology choices, strategic decisions, innovation and entrepreneurship

COMPETENCES

- Must have the competency to clearly identify relevant problems within different application areas, which can be solved by the use of ICT technologies and methods
- Must have the competency to develop innovative and viable services/solutions based on solid engineering knowledge and skills and involving both technical, commercial and user aspects

TYPE OF INSTRUCTION

Project work

EXAM

EXAMS

Name of exam	Advanced ICT Solutions
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	Avancerede IKT-løsninger
Module code	ESNICTEK3P1
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	Ove Kjeld Andersen

ORGANISATION

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

CONTENT AND MEDIA MANAGEMENT

2021/2022

PREREQUISITE/RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

The course builds on knowledge obtained in the modules “Internet technologies and service architectures” and “Development of ICT and media services” or similar

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

LEARNING OBJECTIVES

KNOWLEDGE

- content
- Must have knowledge of standards for metadata and annotation
- Must have knowledge of methods for dealing with Digital Rights Management (DRM)
- Must have knowledge of methods for indexing and handling of unstructured content, e.g. user generated content, in combination with structured media content
- Must be able to understand how to manage and optimise content adaptation and delivery to meet the limitations of various types of networks and terminals and dynamic context

SKILLS

- Must be able to discuss strategies for organising and searching in large quantities of digital content
- Must be able to prepare and integrate multimedia content in a service, including associated metadata
- Must be able to analyse the role and interests of content producers, aggregators and providers in the value chain or value network of a service
- Must be able to analyse problems and solutions for the distribution of digital media content and select appropriate strategies for media distribution

COMPETENCES

- Must have the competency to analyse and evaluate systems and solutions for content and media management
- Must have the competency to advice content providers and non-technical persons on content and media management systems
- Must have the competency to analyse technical aspects of content and media management in a larger political-social-economical context

TYPE OF INSTRUCTION

Types of instruction are listed at the start of Chapter 3.

EXAM

EXAMS

Name of exam	Content and Media Management
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	Indholds- og medieorganisation
Module code	ESNICTEK3K1
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	Ove Kjeld Andersen

ORGANISATION

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

ACADEMIC INTERNSHIP

2021/2022

PREREQUISITE/RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

An academic internship agreement approved by the company, an AAU supervisor and the study board for Electronics and IT (ESN).

The academic internship must have a scope that corresponds to the ECTS load.

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

The student stays in a company with the purpose of learning and applying theories and methods to address engineering problems in an industrial context. In addition, the student will be introduced to business procedures and policies.

LEARNING OBJECTIVES

KNOWLEDGE

- Has knowledge about the organisation of the company and business procedures and policies.
- Has knowledge about performance measures in the company.
- Has developed a fundamental business sense.
- Has knowledge of the competence profile of the programme and how the academic internship contributes to the competence profile.
- Has gained deepened knowledge into engineering theories and methods within the programme

SKILLS

- Can initiate and ensure the completion of an agreement for the academic internship, with learning objectives corresponding to the semester at the master's programme.
- Can apply analytic, methodological and/or theoretic skills to address advanced engineering problems in an industrial context.
- Can contribute in a professional manner to company objectives as an individual and in teams in accordance with the project management model applied in the company.
- Can collaborate and communicate with peers, managers and others.
- Can document the academic internship in a report and defend it orally.

COMPETENCES

- Can discuss and reflect on the learning outcomes of the academic internship.
- Can discuss the need for knowledge transfer between academia and industry.
- Has a deepened understanding of the academic interests to pursue in the master's thesis and possible job positions to aim at after graduation.

TYPE OF INSTRUCTION

Project work

EXAM

EXAMS

Name of exam	Academic Internship

Type of exam	Oral exam based on a project
ECTS	25
Assessment	Passed/Not Passed
Type of grading	Internal examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Projektorienteret forløb i en virksomhed
Module code	ESNICTEK3P3
Module type	Project
Duration	1 semester
Semester	Spring
ECTS	25
Language of instruction	English
Location of the lecture	Campus Copenhagen
Responsible for the module	Ove Kjeld Andersen

ORGANISATION

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

MASTER'S THESIS

2021/2022

PREREQUISITE/RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

The project builds on knowledge obtained during the 3rd semester project

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

The master’s thesis can be conducted as a long master’s thesis. If choosing to do a long master’s thesis, it has to include experimental work and has to be approved by the study board. The amount of experimental work must reflect the allotted ECTS-credits.

LEARNING OBJECTIVES

KNOWLEDGE

- Must have knowledge on state-of-the-art and prospective technology solutions within the ICT field, allowing for technology and service development, and understanding of the contexts in which technologies and services are conceived and developed, including user requirements, market circumstances, and policy and regulation.
- Must have well-founded knowledge of relevant theories and methodologies at specific level as well as at synthesis level, forming the basis for the analysis and development of technology and service solutions that relate to application areas and social and business challenges.

SKILLS

- Must be able to apply the mentioned knowledge and methods to analyse, design, develop and propose innovative applications, services and solutions within specific application areas of ICT, that
    - are technologically well-founded,
    - meet end-user requirements, and
    - are validated from a market and business perspective
- Must be able to analyse the potential and the implications of new technologies for the end users and stakeholders and contribute to ICT strategies and decision-making.
- Must be able to analyse relevant methods to solve the problem, describe and assess the application of the chosen methods and discuss how the chosen methods influence the project results

COMPETENCES

- Must have competencies in innovation and entrepreneurship within the field of ICT
- Must have the competency to identify and delimit relevant problems within ICT with an engineering approach and apply relevant theories, methods and experimental data
- Must have the competency to contribute to the creative use of technologies to resolve user needs and improve organizational processes

TYPE OF INSTRUCTION

The project is carried out individually or in a small group of maximum three members. At least one internal supervisor is assigned, who works with the primary subject within his/her research. Moreover, additional supervisors e.g. from industry can be involved in the project.

EXAM

EXAMS

Name of exam	Master's Thesis

Type of exam	Master's thesis/final project
ECTS	45
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	ESNICTEK4P2
Module type	Project
Duration	1 semester
Semester	Spring
ECTS	45
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Copenhagen
Responsible for the module	Ove Kjeld Andersen

ORGANISATION

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

MASTER'S THESIS

2021/2022

PREREQUISITE/RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

The project builds on knowledge obtained during the 3rd semester project

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

The master’s thesis can be conducted as a long master’s thesis. If choosing to do a long master’s thesis, it has to include experimental work and has to be approved by the study board. The amount of experimental work must reflect the allotted ECTS-credits.

LEARNING OBJECTIVES

KNOWLEDGE

- Must have knowledge on state-of-the-art and prospective technology solutions within the ICT field, allowing for technology and service development, and understanding of the contexts in which technologies and services are conceived and developed, including user requirements, market circumstances, and policy and regulation.
- Must have well-founded knowledge of relevant theories and methodologies at specific level as well as at synthesis level, forming the basis for the analysis and development of technology and service solutions that relate to application areas and social and business challenges.

SKILLS

- Must be able to apply the mentioned knowledge and methods to analyse, design, develop and propose innovative applications, services and solutions within specific application areas of ICT, that
    - are technologically well-founded,
    - meet end-user requirements, and
    - are validated from a market and business perspective
- Must be able to analyse the potential and the implications of new technologies for the end users and stakeholders and contribute to ICT strategies and decision-making.
- Must be able to analyse relevant methods to solve the problem, describe and assess the application of the chosen methods and discuss how the chosen methods influence the project results

COMPETENCES

- Must have competencies in innovation and entrepreneurship within the field of ICT
- Must have the competency to identify and delimit relevant problems within ICT with an engineering approach and apply relevant theories, methods and experimental data
- Must have the competency to contribute to the creative use of technologies to resolve user needs and improve organizational processes

TYPE OF INSTRUCTION

The project is carried out individually or in a small group of maximum three members. At least one internal supervisor is assigned, who works with the primary subject within his/her research. Moreover, additional supervisors e.g. from industry can be involved in the project.

EXAM

EXAMS

Name of exam	Master's Thesis
Type of exam	Master's thesis/final project
ECTS	50
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	ESNICTEK4P3
Module type	Project
Duration	1 semester
Semester	Spring
ECTS	50
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Copenhagen
Responsible for the module	Ove Kjeld Andersen

ORGANISATION

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

MASTER'S THESIS

2021/2022

PREREQUISITE/RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

The project builds on knowledge obtained during the 3rd semester project

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

LEARNING OBJECTIVES

KNOWLEDGE

- Must have knowledge on state-of-the-art and prospective technology solutions within the ICT field, allowing for technology and service development, and understanding of the contexts in which technologies and services are conceived and developed, including user requirements, market circumstances, and policy and regulation.
- Must have well-founded knowledge of relevant theories and methodologies at specific level as well as at synthesis level, forming the basis for the analysis and development of technology and service solutions that relate to application areas and social and business challenges.

SKILLS

- Must be able to apply the mentioned knowledge and methods to analyse, design, develop and propose innovative applications, services and solutions within specific application areas of ICT, that
  - are technologically well-founded,
  - meet end-user requirements, and
  - are validated from a market and business perspective
- Must be able to analyse the potential and the implications of new technologies for the end users and stakeholders and contribute to ICT strategies and decision-making.
- Must be able to analyse relevant methods to solve the problem, describe and assess the application of the chosen methods and discuss how the chosen methods influence the project results

COMPETENCES

- Must have competencies in innovation and entrepreneurship within the field of ICT
- Must have the competency to identify and delimit relevant problems within ICT with an engineering approach and apply relevant theories, methods and experimental data
- Must have the competency to contribute to the creative use of technologies to resolve user needs and improve organizational processes

TYPE OF INSTRUCTION

The project is carried out individually or in a small group of maximum three members. At least one internal supervisor is assigned, who works with the primary subject within his/her research. Moreover, additional supervisors e.g. from industry can be involved in the project.

EXAM

EXAMS

Name of exam	Master's Thesis
Type of exam	Master's thesis/final project
ECTS	30

Assessment	7-point grading scale
Type of grading	External examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Kandidatspeciale
Module code	ESNICTEK4P1
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	Ove Kjeld Andersen

ORGANISATION

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

GREEN ICT - SUSTAINABLE BUSINESS DEVELOPMENT

2021/2022

PREREQUISITE/RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

The course builds on knowledge obtained in the module “Entrepreneurship, Innovation and Business Models” or similar.

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

LEARNING OBJECTIVES

KNOWLEDGE

- Must be able to understand the concept of sustainability
- Must be able to define the concept of “Green ICT” and be able to identify existing, new and emerging hardware, software and communication technologies for energy saving
- Must have knowledge about various levels of ICT effects on the environment
- Must have knowledge and understanding of “linked life cycles concept”
- Must have knowledge about the role of ICT in energy consumption and energy efficiency
- Must have knowledge about methods for assessing the potential environmental impacts of ICT products and services

SKILLS

- Must be able to recognise the possible application area in which the deployment of ICT is expected to lead to better energy efficiency and to estimate their relative importance
- Must be able to apply the green ICT strategies
- Must be able to evaluate the rebound and induction effect within the ICT field
- Must be able to determine which ICT products/services are relevant for inducing energy efficiency in other economic sectors
- Must be able to judge the usefulness of the used different scientific methods for analysis of the ICT related energy efficient systems

COMPETENCES

- Must have the competency to apply and integrate sustainability in an interdisciplinary way, considering user, technology and market aspects.
- Must have the competency to independently define and analyse scientific problems within the area of Green ICT

TYPE OF INSTRUCTION

Types of instruction are listed at the start of Chapter 3.

EXAM

EXAMS

Name of exam	Green ICT - Sustainable Business Development
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	Grøn IKT - Bæredygtig forretningsudvikling
Module code	ESNICTEK2K3
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	Ove Kjeld Andersen

ORGANISATION

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

MANAGERIAL ECONOMICS

2021/2022

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

LEARNING OBJECTIVES

KNOWLEDGE

- Must have knowledge about the basic elements in a business plan
- Must be able to understand different cost concepts and different methods for investment analysis
- Must be able to understand how a pricing strategy can be prepared
- Must have knowledge about the specific cost elements in an ICT project
- Must have knowledge about the cost elements in a communication network

SKILLS

- Must be able to apply a life-cycle cost analysis of a specific ICT project
- Must be able to explain and apply different cost estimation methods for hardware and software
- Must be able to evaluate cost and benefits of an ICT service in a specific context
- Must be able to apply economic analysis as a tool for investment decisions and preparation of a business plan

COMPETENCES

- Must have competencies in preparing a business plan including a detailed financial analysis of a project

TYPE OF INSTRUCTION

Types of instruction are listed at the start of Chapter 3.

EXAM

EXAMS

Name of exam	Managerial Economics
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	Erhvervsøkonomi
Module code	ESNICTEK2K4
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	Ove Kjeld Andersen

ORGANISATION

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

INTERACTION DESIGN

2021/2022

PREREQUISITE/RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

The students is recommended to have basic understanding of human-computer interaction.

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

LEARNING OBJECTIVES

KNOWLEDGE

- Must understand the concepts of human computer interaction, interaction design and user experience and the relation between them
- Must have knowledge of different input and output modes for interactive systems, also in a historical perspective
- Must have knowledge of different methods for designing interaction of ICT systems
- Must have knowledge of different strategies for planning the interaction design of ICT systems

SKILLS

- Must be able to apply the concepts of usability and user experience both to screen-based and non-screen-based interactive systems
- Must master different design methods and techniques for creating and testing interactive systems, including non-screen-based systems
- Must be able to identify tensions between different visions for – and interests in – the design of an interactive system
- Must be able to discuss user cognitive models and other descriptions of users
- Must be able to analyse different types of data from and about users
- Must be able to design the interaction of a given system based on data from and about users
- Must be able to reflect critically on methodological challenges in data from and about users as a source for design
- Must be able to evaluate interactive systems using techniques from interaction design and Human Computer Interaction

COMPETENCES

- Must have the competency to reflect on the implications of using different methods and techniques for interaction design, including user involvement, and for evaluating systems
- Must have the competency to analyse the social context in which the use of ICT takes place
- Must have the competency to discuss concepts of privacy, user sovereignty and personalisation in relation to design dilemmas involved the design of interactive systems
- Must have the competency to position the field of interaction design in the professional context of ICT development

TYPE OF INSTRUCTION

Types of instruction are listed in § 17

EXAM

EXAMS

Name of exam	Interaction Design
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	Interaktionsdesign
Module code	ESNICTEK2K5
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	Ove Kjeld Andersen

ORGANISATION

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

INTERNET ECONOMICS AND GOVERNANCE

2021/2022

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

The student shall have knowledge about the economics of electronic communication infrastructures and how they are governed.

LEARNING OBJECTIVES

KNOWLEDGE

- Must have knowledge about the techno-economics of Internet infrastructures
- Must be able to demonstrate insight into governance structures of the Internet
- Must have knowledge about convergence and its impact on regulation and governance
- Must have knowledge about regulation of competition, user access, and scarce resources
- Must have knowledge about Internet organisations and the standardisation process for internet technologies
- Must have knowledge about unbundling and vertical separation of Internet infrastructures
- Must have knowledge about consumer issues in relation to provision of Internet infrastructures
- Must be able to understand the importance and implications of different governance models for the Internet

SKILLS

- Must be able to analyse the economic and technological conditions which influence governance and market structure of electronic communication infrastructures
- Must be able to apply economic theory for analysis of market conditions for provision of Internet services
- Must be able to analyse drivers and barriers towards investments in electronic infrastructures
- Must be able to discuss and evaluate Internet policies at the national and international level

COMPETENCES

- Must be able to demonstrate development of his/her knowledge, understanding, and ability to make use of socio-economic methods within the fields of Internet economics and governance

TYPE OF INSTRUCTION

Types of instruction are listed at the start of Chapter 3.

EXAM

EXAMS

Name of exam	Internet Economics and Governance
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	Internet-økonomi og regulering
Module code	ESNICTEK3K2
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	Ove Kjeld Andersen

ORGANISATION

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

STANDARDIZATION

2021/2022

PREREQUISITE/RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

The course builds on knowledge obtained in the module “Entrepreneurship, Innovation and Business Models” or similar.

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

LEARNING OBJECTIVES

KNOWLEDGE

- Must have knowledge on different types of standards, including open and closed standards and de facto and de jure standards
- Must be able to understand the importance and role of standards, standardisation strategies, and standardisation processes
- Must have knowledge on standardization organisations in the area of communication, media and information technologies
- Must have knowledge on the relationships between innovation and standardisation

SKILLS

- Must be able to apply theories on network economics, information economics, and transaction costs analysis on standardisation issues
- Must be able to analyse and evaluate the importance and role of standards, particularly within the area of communication, media and information technologies
- Must be able to appraise the role of standards in relation to processes of transaction between market players

COMPETENCES

- Must have competency to interpret the interests which underlie the development of standards
- Must have competency to outline the role of standards in business development for companies in the communication, media and information technology area as well as companies using these technologies
- Must have competency to compare standardisation strategies

TYPE OF INSTRUCTION

Types of instruction are listed at the start of Chapter 3.

EXAM

EXAMS

Name of exam	Standardization
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	Standardisering
Module code	ESNICTEK3K3
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	Ove Kjeld Andersen

ORGANISATION

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

CYBER SECURITY AND TRUST

2021/2022

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

LEARNING OBJECTIVES

KNOWLEDGE

- Must have knowledge of standards addressing top cyber security challenges
- Must have knowledge of effective measures that cyber security programs should take
- Must have knowledge of trusted and open architectures
- Must have an understanding of device security trends and threats associated with “Bring your own device” (BYOD)
- Must have knowledge of (mobile) device management and integrity factors for trusted and untrusted devices
- Must have knowledge of strong user and machine authentication based on valuable assets
- Must have knowledge of hardware-based encryption (“Security on chip”) for higher performance
- Must have knowledge of technologies already embedded in enterprise endpoints
- Must have knowledge of cyber attacks
- Must have knowledge of behavioural profiling and intrusion prevention tools for layer defences
- Must have knowledge of security services and policies within public and private cloud networks

SKILLS

- Must be able to identify requirements and create policies to establish a consistent architecture
- Must be able to monitor, detect and respond to anomalies in the cyber-space
- Must be able to analyse the integrity of the platform to ensure that no unauthorised use has occurred.
- Must be able to design and implement different levels of trust in open architectures.

COMPETENCES

- Must have the competency to design cyber security measures for enterprises
- Must have the competency to discuss end-to-end standards to enable seamless security in an open ecosystem.
- Must have the competency to discuss the business potential and implications of trusted ecosystems

TYPE OF INSTRUCTION

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

EXAM

EXAMS

Name of exam	Cyber Security and Trust
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	Cyber-sikkerhed og tillid
Module code	ESNICTEK3K4
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	Ove Kjeld Andersen

ORGANISATION

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

SMART SENSOR DATA PROCESSING

2021/2022

PREREQUISITE/RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

Basic knowledge of linear algebra and statistics.

Course on “Development of ICT and media services” or similar qualifications.

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

LEARNING OBJECTIVES

KNOWLEDGE

- Must have knowledge about high level smart sensors (e.g. cameras, 3D sensors, EEG sensors)
- Must have knowledge about advanced artificial intelligence and pattern recognition algorithms (e.g. kernel methods, neural networks)
- Must have knowledge about artificial intelligence in the context of data mining
- Must have knowledge about hardware processing platforms (e.g. Arduino, Raspberry Pi) for sensor integration
- Must have a clear understanding of the smart sensor processing technology

SKILLS

- Must be able to use and integrate various high level smart sensors to acquire data
- Must be able to apply machine learning and pattern recognition techniques on acquired sensor data
- Must be able to design and develop smart sensor systems using hardware (e.g. Arduino, Raspberry Pi) for real-time data processing

COMPETENCES

- Must have the competency to compare and choose the most relevant high-level smart sensors for a given application
- Must have the competency to assess the use of various artificial intelligence and pattern recognition techniques for a given application
- Must have the competency to compare and assess the use of various hardware platforms for data processing and sensor integration

TYPE OF INSTRUCTION

Types of instruction are listed at the start of Chapter 3.

EXAM

EXAMS

Name of exam	Smart Sensor Data Processing
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	Databehandling for smart sensors
Module code	ESNICTEK3K5
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	Ove Kjeld Andersen

ORGANISATION

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

DESIGN AND MARKETS

2021/2022

PREREQUISITE/RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

The module builds upon knowledge obtained in the first semester project.

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

LEARNING OBJECTIVES

KNOWLEDGE

- Must be able to understand technology as socio-technical systems where the context of use is pivotal for the value of communication, media and information (CMI) technologies
- Must have knowledge on new organisational forms, new business concepts and changes in the market conditions together with new methods for involving users in the design of communication, media and information technology solutions

SKILLS

- Must be able to identify and apply relevant theories for the synthesis and evaluation of the studied situation
- Must be able to apply knowledge of green ICT and managerial economics as presented in the mandatory semester courses
- Must be able to identify situations of CMI technology related implications for the market
- Must be able to analyse the conditions and implications of use of communication, media and information technologies for individual users, groups, organisations and society by drawing on technical, organisational and techno-economic perspectives

COMPETENCES

- Must have the competencies to distinguish between design and market implications at individual, group, organisational or societal level
- Must have the competencies to perform and analysis of the conditions and implications of communication, media and information technologies in a specific market context
- Must have the competencies to combine theories from different technology, organisational and socio-technical areas to create a multi-faceted understanding of the “problem”
- Must have the competencies to focus on a particular situation of use or a new phenomenon related to new CMI technologies; it could be the conditions and implications related to an organisation engaging in outsourcing, or it could be the conditions and needs for new standards

TYPE OF INSTRUCTION

Project work

EXAM

EXAMS

Name of exam	Design and Markets
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 og markeder
Module code	ESNICTEK2P2
Module type	Project
Duration	1 semester
Semester	Spring
ECTS	15
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Copenhagen
Responsible for the module	Ove Kjeld Andersen

ORGANISATION

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

GOVERNANCE AND STRATEGIES

2021/2022

PREREQUISITE/RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

The project builds on knowledge obtained during the first two semester projects or similar.

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

LEARNING OBJECTIVES

KNOWLEDGE

- Must have knowledge about the importance of the social and business environment in which technologies are used
- Must be able to understand the role of standardisation processes for innovation and in market developments

SKILLS

- Must be able to apply theories, methodologies and empirical knowledge for analysing market developments and governance
- Must be able to apply knowledge on technology, business and regulatory developments for analysing and developing appropriate business models and business strategies
- Must be able to analyse industry sectors and markets using and producing communication, media and information technologies
- Must be able to assess the main regulatory issues in relation to ICT infrastructures, services, and content

COMPETENCES

- Must have competencies in applying an interdisciplinary approach using theories, methodologies and empirical knowledge for analysing specific issues with relation to communication, media and information technologies
- Must have the competency to analyse the interaction between technologies, institutions, organisations and markets in a system perspective

TYPE OF INSTRUCTION

Project work

EXAM

EXAMS

Name of exam	Governance and Strategies
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	Regulering og strategier
Module code	ESNICTEK3P2
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	Ove Kjeld Andersen

ORGANISATION

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