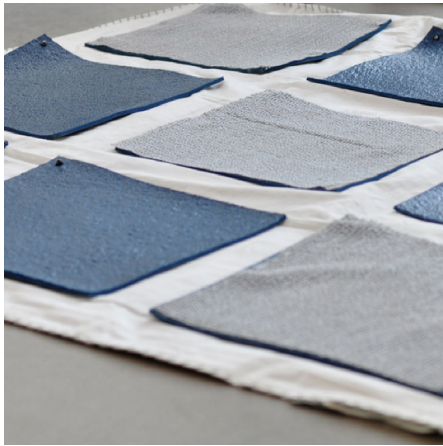


IT Product Design Curriculum

Syddansk Universitet, Mads Clausen Institute for Product Innovation & IT University West

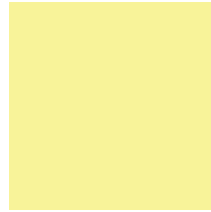
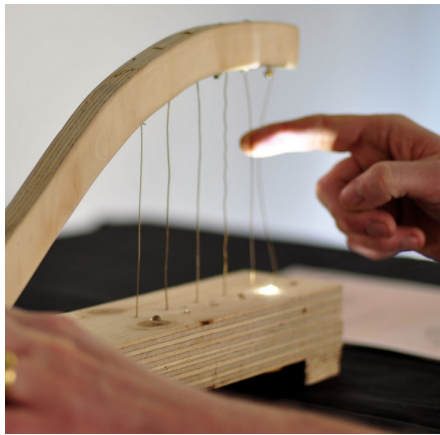
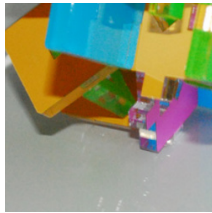


IT Product Design
Master Programme

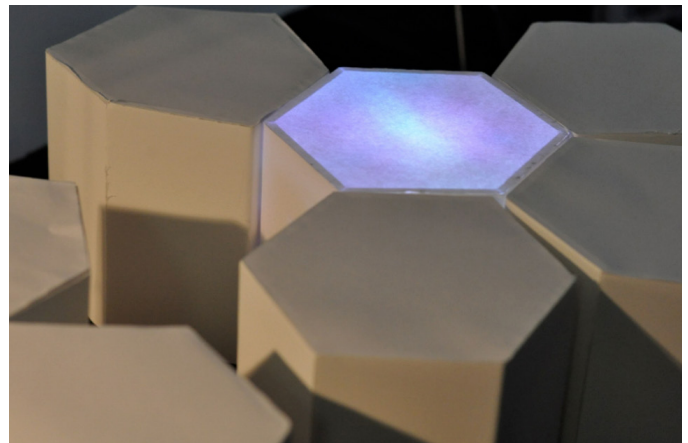
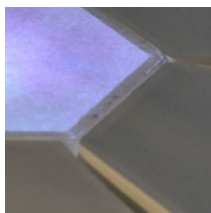
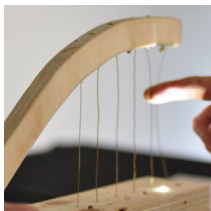
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Chapter 1 A Cross-Disciplinary Programme

IT Product Design is a two-year master programme offered by the University of Southern Denmark in Sønderborg. It is established under the IT-University West; a collaboration between three universities in the western part of Denmark.

The Mads Clausen Institute is responsible for the programme under the auspices of the Academic Study Board at the Faculty of Engineering, University of Southern Denmark. The total course-load of the master programme is 120 ECTS (European Credit Transfer System) points, equivalent to a full-time student's workload over the course of 2 years. Upon completion, this programme awards candidates the degree of Master of Science (MSc) in Information Technology (Product Design). In Danish the degree is *cand.it i Product Design (candidatus/candidata informationis technologiae)*.

Job Functions

The purpose of this master programme is to educate designers who can work in multidisciplinary teams that develop interactive IT products like home appliances, industrial sensors and controls, medical devices, and leisure products. The programme targets those manufacturing industries that are not normally associated with IT. Graduates will be able to take on different professional roles:

A. Design Anthropologist (or business anthropologist, design ethnographer). Employed in user experience departments in larger organizations or in specialized design consultancies to study users and customers and provide market data for R&D functions.

B. User Innovator Employed with marketing departments to innovate strategies for user/customer relations, to establish business models for novel product and service concepts, and to test new offerings with users and customers.

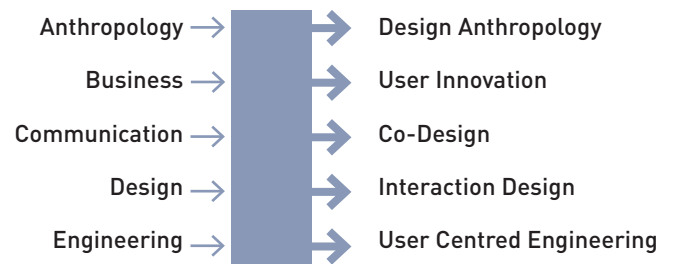
C. Co-Design Facilitator Employed in human resource or user experience departments to organize intercultural collaboration and user involvement in development projects. Would also take responsibility for user studies and evaluation.

D. Interaction Designer Employed in design departments and user experience departments of larger organizations or in design consultancies to develop interactive products, user interfaces and interactive services.

E. User-Centred Engineer (or usability engineer). Employed in R&D departments in large and small organizations to develop user-friendly products and services. Would in smaller companies also take responsibility for user studies and user evaluation.

IT Product Design prepares graduates for innovation leadership functions in their later careers.

The programme also qualifies candidates to enter a PhD programme to pursue a research and education career.



The IT Product Design programme admits students with a range of relevant Bachelor's degrees. Faculty ensures a balanced uptake of disciplines in each class to ensure a truly cross-disciplinary education. Depending on their first degree, students may choose different specialisations.

Qualification Profile

During completion of the Master Programme the student will acquire the qualifications to:

Knowledge

- Understand the theories relating to the development of innovative IT products - and the user work practices they instigate. This knowledge is based on the highest international research within the fields of User Innovation, Interaction Design, Design Anthropology and Design Studies.
- Understand and, on a scientific basis, reflect on the knowledge of the fields of IT Product Design and be able to identify scientific issues.

Skills

- Master the scientific methods of designing user interaction for product interfaces and services based on user empathy and aesthetics of interaction.
- Facilitate collaboration between people with different stakes in an enterprise using materials and conversation tools designed for the situation.
- Assess and select from among the scientific theories, methods, tools and general skills of IT Product Design and to set up new models of analysis and problem solving on a scientific basis.
- Communicate research-based knowledge and discuss

professional and scientific issues with both academic peers and non-specialists, and thereby contribute to the continuous development of theories, methods, and technologies in the research field of IT product development.

Competences

- Organise development situations that are complex, unpredictable and require new solutions, and pilot them in an industrial organisation.
- Independently establish collaboration between professional disciplines within design teams, and with stakeholders outside the development organisation - users in particular.
- Take responsibility for one's own professional development and specialisation.

The programme is organised as a full-time education, and requires students to contribute with time and energy equivalent to that of a full-time job. The programme is based on project work in a design studio. Students learn through completing projects in teams or individually. Theory is introduced both during the projects and in independent lectures and seminars throughout the semesters. Projects are organised in themes, but the actual topics within each theme are largely left for the students themselves to decide.

Chapter 2 Studio-Based Education

Semester Overview

The master programme consists of a number of courses assessed one by one and a master thesis. Each course has an ECTS point figure indicating the weight of the course in the total programme. The equivalent of a one-year full-time workload is 60 ECTS. The required credit to complete the IT Product Design programme is 120 ECTS. The programme is divided into four semesters, each with its own rhythm to train a diversity of work practices:

1st Design Research Horizons: The first semester provides an outlook towards state-of-the-art research avenues through a series of intense projects.

2nd Participatory Practices: The second semester builds a professional practice through a major innovation project and disciplinary apprenticeships.

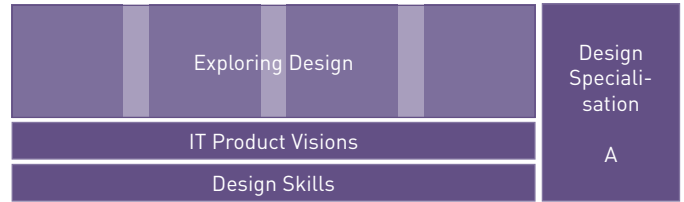
3rd Interaction Research: The third semester establishes design research competence and serves as a preparation for the thesis work.

4th Master Thesis: The final semester brings all the competencies together in a rounded academic piece.

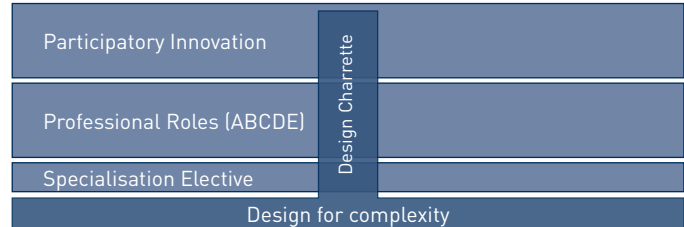
After the first two semesters of study, students are encouraged to complete a summer intern with a company or research institution, or to pursue a research task of their own. The progression throughout the education is shown in the qualification profile matrix overview.

The overview on the following pages (Qualification Matrix) shows the progression throughout the education. It describes how the nine generic qualification goals Knowledge, Skills and Competencies (top row) are achieved through the courses of the education (left column).

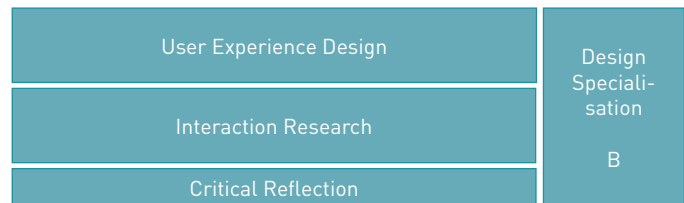
1st Semester



2nd Semester



3rd Semester



4th Semester¹



1 | See Appendix 1 for Exam Codes

Qualification Matrix

	Knowledge		Skills	
	Theories of IT Product Design	Reflect Scientifically	Design User Interaction	Facilitate Stakeholder Conversation
1st Semester Design research horizons				
Exploring Design - 15 ECTS	Understand the fundamental concepts of interaction, design process, and user participation.	Reflect on fundamental concepts of explorative design research	Design fundamental product interaction.	Design conversation tools that enable stakeholder participation.
IT Product Visions - 5 ECTS	Understand fundamental dilemmas relating to IT technology in society.	Take a critical stance towards IT technology in use based on well-grounded scientific arguments.		
Design Skills - 5 ECTS			Design human interactions with materials, products or systems.	
Design Specialisation A - 5 ECTS	Will depend on the area of specialisation.			
2nd Semester Participatory practices				
Participatory Innovation - 10 ECTS	Understand theories of user-driven innovation.	Relate project experiences to literature within the field.		Initiate and facilitate conversations about innovation between employees, users and other stakeholders
Professional Roles - 10 ECTS	Understand organisational practices.	Understand theories on state-of-the-art level and the basic research methods within a professional profile of choice.		
Design for Complexity - 5 ECTS	Understand theories and methods of user systems design.	Understand how different professional disciplines relate to and deal with complexity.	Design interactive products and systems in accordance with user understanding.	Initiate complex stakeholder participation.
Specialisation electives 5 ECTS: Design Anthropology Complexity Innov Leadership Design Studies Human Computer Interaction User Centred Design	Understand basic concepts and theories of the chosen specialisation.	Reflect on practices and methods in light of core literature.	(depending on elective)	
3rd Semester Interaction research				
User Experience Design - 10 ECTS	Understand the existing frameworks of designing for user experiences, and the relation between form, action and aesthetics	Reflect on the role of experience prototyping in the context of the design project.	Use prototyping effectively throughout the design and evaluation of user experiences.	
Critical Reflection - 5 ECTS	Understand theoretical backgrounds informing development of professional roles.	Understand interpretive frameworks for examining professional knowledge.		
Interaction Research - 10 ECTS (elective)		Understand the methodological bases of research-oriented design.		Develop and deploy collaborative activities in a design context.
Design Specialisation B - 5 ECTS	Will depend on the area of specialisation.		Design human interactions with materials, products or systems.	
4th Semester Master thesis				
Thesis 30 ECTS	Contribute to new knowledge within the field of participatory design or participatory innovation.	Argue scientifically for design research findings grounded in state-of-the-art literature and empirical data.	(depending on theme)	

		Competencies		
Select Appropriate Methods	Communicate Research-based Knowledge	Organise Development	Establish Interdisciplinary Collaboration	Develop Own Professional Specialisation
1 Semester Design research horizons				
	Communicate basic research dilemmas and findings.			Understand the role of reflection in the development of professional work practice and choose appropriate reflection formats for a team
	Communicate in basic scientific writing.			
Select appropriate techniques for multidisciplinary design work by drawing on an essential set of design skills.				
Experiment with new design methods to expand the personal toolbox.			Establish interdisciplinary collaboration among peers.	Work independently with developing a competence of own choice.
2 Semester Participatory practices				
Choose and apply appropriate methods for user studies, sense-making, user co-creation, participatory business modelling etc.		Organise innovation projects with user participation.	Establish action research activities in an organisation	
Develop a research plan and apply ethnographic methods for studying an organisation	Communicate IT Product Design competencies and their role within an organization.	Independently influence and develop relationships with an organisation		Develop own reflective practice.
			Establish collaboration between participants with different disciplinary backgrounds.	
Apply core methods within the professional practice.	(depending on elective)	(depending on elective)		
3 Semester Interaction research				
Choose and apply appropriate methods that evoke relevant experiences throughout the design process.		Organise a research-through-design process		
Observe and analyse work practice in an [industrial] organisation.	Communicate in advanced scientific writing.			Master a set of learning goals to improve design practices through assessment of methods.
Analyse and critically treat data gathered within a design project, drawing scientifically grounded conclusions.	Communicate in advanced scientific writing.	Organise and carry out a knowledge-generating design project in a specific context.		
Experiment with new design methods to expand the personal toolbox.			Establish interdisciplinary collaboration among peers.	Set learning goals and organise activities that support the development of personal competencies.
4 Semester Master thesis				
	(depending on theme)		(depending on theme)	

Exploring Design 15 ECTS Fall

Innovative design practitioners require exposure to the state-of-the-art developments in design research. This course offers short, intense researcher-driven projects at the forefront of current scientific research.

Assessment Criteria: – (Knowledge) Understand the fundamental concepts of interaction, design process, and user participation. Reflect on fundamental concepts of explorative design research. – (Skills) Design fundamental product interaction. Design conversation tools that enable stakeholder participation. Communicate basic research dilemmas and findings. – (Competencies) Understand the role of reflection in the development of professional work practice and choose appropriate reflection formats for a team.

Contents: Through project work the students explore different perspectives of IT Product Design relating to process (What is the focus of current research in design and design methods? E.g. video ethnography, business modelling) and relating to product (What are the prevailing themes in IT Product research? E.g. tangible interaction, critical design, service design). The contents will vary from year to year, depending on the current research thrust at the Mads Clausen Institute.

Structure: The course consists of 4-5 mini-projects that introduce current research themes, each of 2-3 weeks duration. Each project is organised in collaboration with one or more company partners and has a concrete product goal: In teams students create a method, an analysis, a conversation tool, or a product concept. The projects will introduce a variety of theories, working methods and presentation formats. Project work is supported by seminars, literature, discussions, tutoring, and design crits. The projects will be organised by those researchers and PhD students who work within each theme.

Prerequisites: Same as programme admission.

Assessment: 7-scale grading based on a portfolio exam, external co-examiner. The portfolio exam is an individual presentation of each student's achievements and competence development during the course. To enter the exam, all mini-projects must be completed satisfactorily.

IT Product Visions 5 ECTS Fall

The ability to critically reflect on IT technology in society and form one's own visions is an essential asset for socially responsible IT Product Designers.

Assessment Criteria: – (Knowledge) Understand fundamental dilemmas relating to IT technology in society. Take a critical stance towards IT technology in use based on well-grounded scientific arguments. – (Skills) Communicate in basic scientific writing.

Contents: Prevailing ideas about future IT technologies, products, interaction, and societal implications. The content will vary year by year, but will represent a broad range of perspectives.

Structure: Students are encouraged to formulate their understanding and visions of the future of IT Products. The range of course activities includes academic papers, guest lectures, films, and literature. The course may include a study trip.

Prerequisites: Same as programme admission.

Assessment: 7-scale grading based on an essay, internal co-examiner.

Design Skills 5 ECTS Fall

To make cross-disciplinary collaboration work, a basic level of skills from all disciplines are necessary to bridge differences and generate mutual respect.

Assessment Criteria: – (Skills) Design human interactions with materials, products or systems. Select appropriate techniques for multidisciplinary design work by drawing on an essential set of design skills.

Contents: Practical education in idea sketching, graphical IT tools for layout and illustration, video recording and editing, model making with cardboard/foam/wood/metal, programming, written communication, process facilitation etc.

Structure: 20 half-day workshops with hands-on exercises training practical skills. Students with strong skills in one area will support the progress of other students in that field. Once the workshop programme is complete, the students produce a test-piece, which demonstrates the skills learned.

Prerequisites: Same as programme admission.

Assessment: Pass/ fail based on design crit of the individual test piece, internal co-examiner. A precondition for entering exam is regular attendance of the workshops (min. 90 %).

Design Specialisation A 5 ECTS Fall

The balance between collaborative and independent inquiry is an important professional ability. This course provides an opportunity for students to adapt the curriculum to individual requirements. For 1st year students this is a way of building professional relations to 2nd year students and learning from peers.

Assessment Criteria: – (Knowledge) Will depend on the area of specialisation. – (Skills) Experiment with new design methods to expand the personal toolbox. – (Competencies for 1st year students) Establish interdisciplinary collaboration among peers. Work independently with developing a competence of own choice.

Contents: Students have the opportunity to study a theme of their own choice under supervision. The course includes three activities: (1) Planning of the course program (theme, learning goal, literature, deliverables, plan, participants, supervisor). (2) Study and project work within the selected design specialisation, e.g. vision based design, scenario development, experience modelling, creative methods. (3) Organising a presentation in the form of a design show or seminar.

Structure: Three week full-day assignment including literature study, project work, seminars and presentations. 1st and 2nd year students participate in mixed teams. Students are encouraged to involve a member of faculty as research advisor.

Prerequisites: Same as programme admission.

Assessment: Pass/ fail based on design crit, internal co-examiner.

Participatory Innovation 10 ECTS Spring

Innovation is inherently multidisciplinary. Participatory Innovation is a new, integrated approach that cuts across the different research disciplines that offer partial theories of how organizations can involve users and other stakeholders in innovation.

Assessment Criteria: – (Knowledge) Understand theories of user-driven innovation. Relate project experiences to literature within the field. – (Skills) Initiate and facilitate conversations about innovation between employees, users and other stakeholders. Choose and apply appropriate methods for user studies, sense-making, user co-creation, participatory business modelling etc. – (Competencies) Organise innovation projects with user participation. Establish action research activities in an organisation.

Contents: The course introduces history and approaches of user-driven innovation (usability engineering, participatory design, design anthropology, lead-user approach and others). It discusses how these approaches play out in an industrial organisation: The uptake of provokative user knowledge, collaborative sensemaking, user empathy and identity forming, social shaping of innovation, participatory business modelling.

Structure: Lectures will introduce the students to theories and methods of Participatory Innovation. A larger innovation project in collaboration with a company or organization will provide hands-on experience with innovation methods and cross-disciplinary teamwork. The project is documented in a report and presented orally in a pitch to the company. The students complete the course by creating a methods portfolio where they discuss experiences from the project work in relation to literature.

Prerequisites: Same as programme admission.

Assessment: 7-scale grading based on project report and oral exam, external co-examiner. At the oral exam students individually present their reflections on methods used in their project.

Professional Roles 10 ECTS Spring

In rapidly developing fields of practice such as the expanded IT industry, professionals must (re)define their roles and negotiate skills. The course enables students to identify individual competencies and employment types.

Assessment criteria: – (Knowledge) Understand organisational practices. Understand theories on state-of-the-art level and the basic research methods within a professional profile of choice. – (Skills) Develop a research plan and apply ethnographic methods for studying an organisation. Communicate IT Product Design competencies and their role within an organization. – (Competencies) Independently influence and develop relationships with an organization. Develop own reflective professional practice.

Contents: The course has two parts that run in parallel -
I: Professional roles in organisations: The collection of (primary and secondary) material on professional organisations, interpretation, analysis and communication of results; how to approach and negotiate with companies: CV, cover letter, project proposal, portfolio. Students use this to establish contacts for a summer intern.

II: Professional work practices within one profile of choice:

- (A) Design Anthropologist: Ethnographic studies, theory building, anthropology of skill, engagement of results.
- (B) User Innovator: Business modeling, stakeholder engagement, innovation leadership.
- (C) Co-Design Facilitator: Design process research, interaction analysis, process facilitation.
- (D) Interaction Designer: Tangible interaction design, interactive prototyping, interaction aesthetics.
- (E) User-Centred Engineer: Usability studies, participatory processes, user involvement in a corporate environment.

Structure: Full-class activities: Exposure to Danish and international companies through guest lectures, tele interviews, and company visits. Weekly seminars focusing on literature studies, ethnographic research of organisations, individual exercises and presentations. Profile study circles: Professors from each of the profiles offer a theme that they will collaborate with students to explore. Students pick a profile and work in a form of ‘apprenticeship’ under the guidance of the professor.

Prerequisites: Exploring Design.

Assessment: Pass/fail based on an individual essay and design crit: An Organisational Study (mid-semester) and a Professional Profile Reflection (end of semester), internal co-examiner.

Design for Complexity 5 ECTS Spring

Interaction design requires an appreciation that interfaces of today are rarely only personal (one-product-for-one-user). This course covers the design of interactions for the complexity inherent in systems of networked products, communities of users and the design of services.

Assessment Criteria: – (Knowledge) Understand theories and methods of user systems design. Understand how different professional disciplines relate to and deal with complexity. – (Skills) Design interactive product systems and services in accordance with user understanding. Initiate complex stakeholder participation. – (Competencies) Establish collaboration between participants with different disciplinary backgrounds.

Contents: Students learn what it means to design interactive products when these products become part of larger ecologies of networked products and services within social structures of multiple users, producers, service and content providers. Through lectures and literature, students will be given viewpoints from different disciplines on these systems. In the design charette project students learn to switch between bird's eye and frog's eye view to understand and appreciate the complexity of relations between the nodes of such systems. Furthermore they learn to model and represent these relationships in order to identify and communicate opportunities for design and innovation.

Structure: Throughout the semester faculty organises bi-weekly seminars for each of the IT Product Design profiles. In these seminars the disciplines discuss their views on the design of complex systems. Students help prepare and facilitate the events. Mid-term the full class joins in a concentrated 2-week design charette with a focus on a broader user system topic, typically co-organised with an external partner. In this project, students enter with the profile they develop in the Professional Roles course.

Prerequisites: Exploring Design.

Assessment: Pass/ fail based on design crits, internal co-examiner.

Design Anthropology 5 ECTS Spring

Design Anthropology is concerned with the design of technologies that build upon and enhance embodied skills of people. This area of research cuts across a wide range of fields from industrial design, through human movement studies and ecological psychology, to sociocultural anthropology.

Assessment criteria: – (Knowledge) Understand processes of transformation and change within social contexts, and how they are made tangible. Reflect on practices and methods in light of core literature. – (Skills) Observe and analyse human practices in social contexts. Engage a broader constituency of stakeholders in the anthropological sensemaking. – (Competencies) Strategic use of anthropological theory, concepts, tools and frameworks throughout the design process.

Contents: Design Anthropology not only remains in the realm of critical discourse but also provides a constructive critique aiming towards rethinking what design and innovation could be. Working closely with industry, the course is organized around building relations between: using and producing, designing and using, people and things, theory and practice. Lines of enquiry are investigated through designing tools, concepts and frameworks for: engaging people within collaborative processes of designing, exploring interrelations between human perception, skilled practice, gesture and embodied movement, enable people to express relationships, transaction, values, and tensions in their ways of knowing and doing; re-framing relations between designer and user, and multiple stakeholders.

Structure: The course addresses thematic issues through field investigations, design experiments, research examples and literature. Students become familiar with a variety of anthropological and ethnographic tools, methods, methodologies and non representational practices e.g. fieldwork design, interviewing; participatory observation; grounded ethnographic enquiry and provocation; sense making and co-analysis of field materials involving design materials; generating lines of enquiry and design directions, communication of key findings. Design experiments are contextualized with recourse to theories from anthropology, design and philosophy including: anthropology of the senses, aesthetics of the everyday, skilled practice, knowledge, exchange and personhood in the production and use of technology, medical anthropology.

Prerequisites: Exploring Design

Assessment: 7-scale grading based on exhibition design and oral exam, external co-examiner.

Complexity of Innovation Leadership 5 ECTS Spring

Leadership of innovation practice requires an understanding of its complex, social and relational character. Recent research within complexity offers new explanations of the innovation paradoxes.

Assessment Criteria: – (Knowledge) Understand basic concepts and theories in complexity thinking. Relate own experiences to key literature. – (Skills) Communicate own experience as reflective narratives in scientific writing. – (Competencies) Exercise leadership of innovation processes based on reflective insight into everyday complex responsive processes of relating.

Contents: Insight in key concepts in complexity theory, such as non linearity, role of local interaction for emerging global patterns, role of paradox and the challenges it gives to mainstream thinking of organization, change and leadership. Role of communication as interaction and identity formation, group processes and power as interdependency. In the light of complexity thinking, work with own current experiences of being part of activities involving change and leadership in the form of incomplete, written narratives, action and reflection.

Structure: Literature study, seminars with student discussions, reflections, and essay writing. The course is arranged as a study circle that includes PhD students and researchers from the Mads Clausen Institute.

Prerequisites: None. This course is offered as an elective to other programs in the university.

Assessment: 7-scale grading based on an essay in scientific paper format and oral exam, external co-examiner.

Design Studies 5 ECTS Spring

Understanding the historical theories and philosophies of design produces designers who are able to reflect on their own design practices, decisions and outcomes.

Assessment Criteria: – (Knowledge) Understand basic concepts and theories in design research. Compare and evaluate different historical approaches to design practice and the organisation of design processes – (Skills) Apply core methods within the professional practice. Communicate in scientific writing.

Contents: Current and historical theories of design. These are selected each year from influential design texts; they include notions such as reflective practice, wicked problems, participatory design, user-centred design, design philosophy, design as a social process, the roles of artefacts, tools and representations in design.

Structure: Literature study, seminars with student presentations and discussions, and essay writing. The course is arranged as a study circle that includes PhD students and researchers from the Mads Clausen Institute.

Prerequisites: None. This course is offered as an elective to other programs in the university.

Assessment: 7-scale grading based on an essay in scientific paper format and oral exam, external co-examiner.

Human Computer Interaction 5 ECTS Spring

To successfully design our interactions with new technologies requires an analytic appreciation of how people currently interact with and make sense of interfaces in real time.

Assessment Criteria: – (Knowledge) Understand and apply basic theories of human interaction and design principles. Reflect on practices and methods in light of core literature. – (Skills) Analyse interaction with technologies and diagnose interaction design problems. – (Competencies) Redesign product interfaces based on theories, principles and analytic tools covered in the course.

Contents: Design relevant theories of human interaction, interaction design principles, analytic concepts, tools and techniques for video/audio analysis of human interaction with technologies.

Structure: Lectures, practical assignments in analysis and design, literature studies, presentations, design methods.

Prerequisites: None. This course is offered as an elective to other programs in the university.

Assessment: 7-scale grading based on oral exam, external co-examiner. To enter the exam, all assignments must be handed in.

User Centred Design 5 ECTS Spring

The design of products that are a good fit with users' practices and contexts of use requires mastery of principles and methods developed within the field of user-centred design over many years.

Assesment Criteria: – (Knowledge) Understand basic concepts and theories of user centred design. Reflect on practices and methods in light of core literature. – (Skills) Master methods for investigating use practices, designing interactive products, and facilitating user collaboration. – (Competences) Reflect on methods development in the light of current literature.

Contents: Principles for engaging users in product and user interface design: User studies, video design techniques, user ethnographies, experience modelling. Design of button & display type user interfaces. Interaction styles and tangible user interfaces. User interface prototyping and use scenario design. User participation and user workshops. Reflective design practice: Event-driven design strategy, design methods development.

Structure: The course includes lectures and hand-on class exercises that introduce design methods. Mandatory hand-in assignments train the methods in students' own projects, for instance: Usability study, video portrait, experience model, use scenario video. The assignments are organised so they can support a semester project running in parallel.

Prerequisites: None. This course is offered as an elective to other programs in the university.

Assessment: 7-scale grading based on an essay, external co-examiner. The essay has the form of an individual methods portfolio, in which students report on their own methods experiences and relate to literature. To enter the exam, all assignments must be handed in.

User Experience Design 10 ECTS Fall

User experience is a fundamental concept in interaction design, and it requires physical, interactive prototypes that actually work to create and evaluate user experiences.

Assessment Criteria: – (Knowledge) Understand the existing frameworks of designing for user experiences, and the relation between form, action and aesthetics. Reflect on the role of experience prototyping in the context of the design project. – (Skills) Use prototyping effectively throughout the design and evaluation of user experiences. Choose and apply appropriate methods that evoke relevant experiences throughout the design process. – (Competencies) Organise a research-through-design process.

Contents: Study and evaluation of user experience. Electronic prototyping techniques and prototyping kits. The relationship between product form and behavior, product semantics and affordances. Design of physical, interactive products. Continuous user involvement for evaluation of experience.

Structure: Group design project. Lectures, hands-on workshops, presentations. The design project results in a working interaction prototype, which must be evaluated with user involvement.

Prerequisites: Same as programme admission.

Assessment: 7-scale grading based on design crit of an electronic prototype, external co-examiner.

Critical Reflection 5 ECTS Fall

Critical reflection is widely acknowledged as essential to professional development and practice, and therefore an important part of professional education.

Assessment Criteria: – (Knowledge) Understand theoretical backgrounds informing development of professional roles. Understand interpretive frameworks for examining professional knowledge. – (Skills) Observe and analyse work practice in an (industrial) organisation. Communicate in advanced scientific writing. – (Competencies) Master a set of learning tools to improve design practices through assessment of methods.

Contents: Based on a summer internship or other organisational activity, students are challenged to critically reflect on their experience and knowledge traditions. A variety of interpretive frameworks are offered to examine personal, interpersonal, contextual issues related to forms and domains of professional knowledge.

Structure: Individual assignments and group seminars to support interpretation, analysis, writing, presentation of empirical materials and theoretical resources.

Prerequisites: Same as programme admission.

Assessment: 7-scale grading based on an essay in scientific paper format, external co-examiner.

Interaction Research 10 ECTS Fall (elective)

Solid interaction research skills and the ability to communicate project results are crucial for both developing interactive products and new design methods.

Assessment Criteria: – (Knowledge) Understand the methodological bases of research-oriented design. – (Skills) Develop and deploy collaborative activities in a design context. Analyse and critically treat data gathered within a design project, drawing scientifically grounded conclusions. Communicate in advanced scientific writing. – (Competencies) Organise and carry out a knowledge-generating design project in a specific context.

Contents: In preparation of a graduate thesis, students need time to explore opportunities in a particular use context or company setting. Design research paradigms, data collection and analysis methods, validity and scientific argumentation. As a result of this research, students can clearly define and delimit their thesis project. The period may be used for research in another country.

Structure: Individual work including literature research, user research, concept mapping, company negotiation. Seminars with student's presentations and discussions, essay writing.

Prerequisites: None. This course is offered as an elective to other programs in the university.

Assessment: 7-scale grading based on an essay, internal co-examiner.

Design Specialisation B 5 ECTS Fall

The balance between collaborative and independent inquiry is an important professional ability. This course provides an opportunity for students to adapt the curriculum to individual requirements. For 2nd year students this is an opportunity to develop an area of specialism related to thesis investigations, and possibly involve first-year students in the effort.

Assessment Criteria: – (Knowledge) Will depend on the area of specialisation. – (Skills) Design human interactions with materials, products or systems. Experiment with new design methods to expand the personal toolbox. – (Competencies for 2nd year students) Establish interdisciplinary collaboration among peers. Set learning goals and organise activities that support the development of personal competencies.

Contents: Students have the opportunity to study a theme of their own choice under supervision. The course includes three activities: (1) Planning of the course program (theme, learning goal, literature, deliverables, plan, participants, supervisor). (2) Study and project work within the selected design specialisation, e.g. vision based design, scenario development, experience modelling, creative methods. (3) Organising a presentation in the form of a design show or seminar.

Structure: Three week full-day assignment including literature study, project work, seminars and presentations. 1st and 2nd year students participate in mixed teams. Students are encouraged to involve a member of faculty as research advisor.

Prerequisites: Same as programme admission.

Assessment: Pass/ fail based on design crit, internal co-examiner.

Thesis 30 ECTS Spring or Fall

In the work with the thesis the student establish and complete an extensive research project and reflect the work in scientific writing

Assessment Criteria: – (Knowledge) Contribute to new knowledge within the field of participatory design or participatory innovation. Argue scientifically for design research findings grounded in state-of-the-art literature and empirical data. - (Skills) Depending on theme. – (Competencies) Depending on theme.

Contents: The students decide in dialog with course tutors on the theme for their thesis. A tutor is appointed as personal advisor for each student. The thesis must – in a suitable balance - document the student's ability to (1) design IT products, (2) create new knowledge through design research, and (3) influence the work practices and attitudes in a design organisation. The contents and quality of the thesis must approach professional state-of-the-art level on design, research, or organisational development, depending upon the chosen focus.

Structure: The thesis is initiated on the basis of a thesis statement, which describes the focus, relevance, method and scope. The thesis theme must be approved by the Head of Studies.

Thesis work is individual or completed in pairs of two students. During the work with the thesis the students will do peer reviews.

Prerequisites: To start working on the thesis the student needs to have passed exams equivalent to 75 ECTS.

Assessment: 7-scale grading based on thesis and oral exam, external co-examiner.

Chapter 3 Rules and Regulations

§1 Admission to the Master Programme

1.1 An important method of this education is the cross-disciplinary interaction between students with different academic backgrounds. The programme accepts students with a Bachelor's degree from one of the disciplines relevant to IT Product Design:

Anthropology: BA in Anthropology, Sociology, or similar.

Business: BA in Business Administration, or similar.

Communication: BA in Business Communication, or similar.

Design: BA or BSc in industrial design, graphic design, multimedia, or similar.

Engineering: BSc or BEng in mechatronics, electronics, IT or similar.

1.2 A balanced uptake of students with *A, B, C, D, E* backgrounds is enforced to ensure the necessary cross-disciplinary environment.

1.3 Up to 20 students are admitted each year based on a motivated application, samples of creative work, and an interview. You must document your English skills in one of the following ways: 1) TOEFL test with a score of min. 575/230/88 2) IELTS test with a score of min. 6.5 3) CAE with a minimum result of C or the CPE.

1.4 Based on an individual assessment, the programme may accept applicants without a formal Bachelor's degree, if they have equivalent academic qualifications.

1.5 The master programme must be completed within four consecutive years from admission. Periods of leave are not included.

1.6 To stay enrolled in the study programme students must actively pursue their studies. Registration will be withdrawn for students who have not passed any exams for one consecutive year.

1.7 The Academic Study Board may grant exemption from these rules in case of exceptional circumstances.

§2 Types of Exams

2.1 The purpose of examination is to assess whether, and to what extent, the qualifications attained by the student are consistent with the goals, competencies and academic requirements established in the Executive Order of the Study Programmes, the Course Curriculum, and the respective semester guides.

2.2 The IT Product Design programme includes the following types of exams:



Oral Exam Oral exams are typically prepared presentations based on project reports, essays, or literature. They train the student's ability to focus on the essential and communicate a complex message. Oral exams are public, unless the students under examination refuse public attendance or unless projects have been carried out under a non-disclosure agreement with e.g. a company.



Design Crit Design critiques are sessions in which students present their design results for open discussion and evaluation in class. Through design crits the students learn to accept and give critique of design results rather than design process. Students also train to prepare material suitable for communication (e.g. prototypes, posters, videos). Crits are not open to public, but guests may be invited pending on teachers' acceptance.



Portfolio Exam Students are encouraged to establish and maintain a presentable collection of their personal work achievements. The portfolio exam is a 15 min presentation of this collection to teachers and examiners, simulating a job interview in the industry. The students select which media they prefer and decide on the format of the presentation (room arrangement, activities, teacher roles etc.).



Project report A project report trains the student in documenting results and process of a design project. For design projects, the report will typically include edited video recordings of relevant user studies, scenarios etc. and product mock-ups or prototypes. The course sets a page-limit per student for the report. Unless a specific page format is given, a standard page has 2100 characters.



Essay Essays train reflection and discussion of a particular theme based on references to literature, practical experiments, observations etc. The course sets a page-limit per student for the essay. Unless a specific page format is given, a standard page has 2100 characters.

2.3 All exams are individual. Group reports may serve as the basis for individual assessment only when it is clearly indicated which member of the group has contributed with what content. Group reports may serve as a basis for a subsequent individual exam.

§3 External and Internal Examiners

3.1 The exams are graded either externally or internally. Exams are assessed by the teachers of each course in cooperation

with internal or external examiners. External examiners are experts from outside the University approved by the Danish Property and University Agency from the Danish Corps of External Examiners for Engineering Education. Internal examiners are other teachers from the University of Southern Denmark.

3.2 At least one third of the total course credit of the programme must be graded with external examiners, including the master thesis.

§4 Grading

4.1 Exams are graded using either marks of the Danish 7-scale or a Pass/Fail assessment. The table below will be applied to convert Danish marks into the international ECTS grading system.

4.2 No more than one third of the master programme's total ECTS points may be assessed using the 'pass/fail' marks, not including credits of transfer from other universities. The master thesis is graded using the 7-point grading scale.

4.3 Results of an exam assessment are made available to students no later than 1 month after the exam.

§5 Spelling and Writing Ability

5.1 All courses are taught in English and the examination language is English. Language proficiency and spelling are part of the assessment criteria for exams.

5.2 Students who can provide documentation for a relevant, specific disability (e.g. dyslexia) can apply for exemption from the requirement on spelling and writing ability.

7-scale	ECTS	Grading system
12	A	EXCELLENT – outstanding performance with only minor errors
10	B	VERY GOOD – above the average standing but with some errors
7	C	GOOD – generally sound work with a number of notable errors
4	D	SATISFACTORY – fair but with significant shortcomings
02	E	SUFFICIENT – performance meets the minimal criteria
00	Fx	FAIL – some more work required before the credit can be awarded
-3	F	FAIL – considerable further work is required

§6 Passed Courses

6.1 Exams are passed when the assessment 'pass' or the grade 02 or higher is achieved. Once an exam or a course has been passed it cannot be retaken.

6.2 The study programme is concluded with the achievement of grade 02 or higher in all exams assessed using the 7-point grading scale and a pass in all exams marked as either pass or fail.

6.3 All exams must be passed to complete the master programme. For each semester, students must register for the exams they want to take.

§7 Three Examination Attempts

7.1 If students fail an exam, they may enter the same exam up to three times. The Academic Study Board may allow a further attempt in case of exceptional circumstances. Lack of academic aptitude is not an exceptional circumstance.

§8 Disabilities

8.1 Students with physical or mental disabilities or who face other comparable disadvantages may apply to the Academic Study Board for special examination conditions. The Academic Study Board will grant these when they are considered necessary to provide the students concerned with equal opportunities when taking exams. It is a precondition that this proposition does not change the standard of the exam.

8.2 The degree certificate will not contain any information about special examination conditions.

§9 Exam Admission and Recording

9.1 Oral exams are as a rule open to the public, unless the University chooses to restrict admission due to particular circumstances. Such circumstances include:

- consideration for individual students
- students' intellectual property rights to project results
- confidential knowledge from third parties, like companies and organisations.

9.2 Audio and/or video recording is not allowed during the exam. If the recording is part of the examination process, the university is permitted to make audio and/or video recordings during the exam.

§10 Examination Irregularities

10.1 Disciplinary actions will be taken against any student who:

- includes text authored by others without proper citation or referencing; or
- uses their previously assessed work without making this

clear; or

- is guilty of examination cheating in any other way

Cf. the University of Southern Denmark's rules on this matter.

10.2 Disciplinary action can also be taken against any student who exhibits disruptive behaviour during an exam

10.3 Should a student discover errors and/or shortcomings during an exam, this should be brought to the attention of the examiners.

Course	ECTS	Exam Type	Examiner	Grading
1 Semester Horizon				
Exploring Design	15	Portfolio exam	External	7-scale
IT Product Visions	5	Essay	Internal	7-scale
Design Skills	5	Design crit of test piece	Internal	Pass/fail
Design Specialisation A	5	Design crit	Internal	Pass/fail
2 Semester Practice				
Participatory Innovation	10	Project report and oral exam	External	7-scale
Professional Roles	10	Essay and design crit	Internal	Pass/fail
Design for Complexity	5	Design crit	Internal	Pass/fail
Electives	5	(varies)	External	7-scale
3 Semester Research				
User Experience Design	10	Design crit of electronic prototype	External	7-scale
Critical Reflection	5	Essay	External	7-scale
Interaction Research(Elective)	10	Essay	Internal	7-scale
Design Specialisation B	5	Design crit	Internal	Pass/fail
4 Semester Thesis				
Thesis	30	Thesis and oral exam	External	7-scale

§11 The Master Thesis

11.1 The master thesis is equivalent to 30 ECTS points and is an independently written assignment that concludes the Master Programme. The Academic Study Board may, in special cases, grant an exemption from the rule that the thesis is the final element of the Master Programme.

11.2 The thesis must document the student's ability to apply relevant scientific theories and methodology while working with a defined specialist topic.

11.3 The thesis is initiated on the basis of a thesis statement, which details the start date and submission deadline. The statement describes the focus, relevance, method and scope, and it is approved by the Head of Studies. An approved thesis statement cannot be cancelled.

11.4 To enter the thesis work, students need a minimum of 75 ECTS.

11.5 The submission deadline for the thesis is set centrally and is binding. The Academic Study Board may allow an exemption from the submission deadline in case of exceptional circumstances.

11.6 If the student is unable to submit the thesis report within the set deadline, the submission deadline is extended by three months and the university will approve a modified thesis statement within the original topic area. The submission deadline may be extended a second time, again by three months. The same rules apply for the third examination attempt as for the first and second examination attempts.

11.7 The Master thesis is written in English, and must include a 1-page summary in English, that will be part of the assessment.

§12 Course and Exam Registration

12.1 Students must register for the courses they want to follow in the digital Student Self-Service system within the announced registration periods:

Spring semester courses: 29 November – 12 December

Fall semester courses: 10 May – 20 May

Upon registration for the courses, the student is automatically registered for the exams as well.

12.2 Admission to the study programme entails registration for the first semester's courses and exams.

12.3 Late course registrations require an exemption from the Academic Study Board, which will only be granted in case of special circumstances.

12.4 Students can only attend courses equivalent to 40 ECTS in each semester. Courses that have previously been followed but not yet passed are included. However, this rule does not apply to the master thesis semester.

12.5 The University is not obliged to admit a student to more courses than those necessary to conclude the education.

§13 Withdrawal from Exams

13.1 The deadline for withdrawal from exams is 8 days before the exam date. Withdrawal can be made via the Student Self-Service system.

13.2 If the student withdraws from the exam after the dead-

line, the exam in question is considered failed and counts as one attempt. The Academic Study Board may grant exemptions from the withdrawal deadline in special circumstances.

13.3 If students miss an exam because of illness, they must provide a medical certificate to cancel the exam registration. The cost of the medical certificate is carried by the student.

13.4 If a student falls ill during the exam, the student must consult his/her doctor immediately after leaving the examination room. The student must immediately submit a medical certificate, documenting the illness, to the Examinations Office. The student's examination will not be graded and will not count as an examination attempt.

§14 Re-examination

14.1 Students who have not passed an ordinary exam and students who have been prevented from attending an exam due to illness may apply for a re-examination no later than eight days after the publication of results.

14.2 A re-examination takes place within the same term as the ordinary exam. The re-examination may have another examination form than the ordinary exam.

§15 General Exemptions

15.1 The Academic Study Board can – if extraordinary circumstances support this – grant an exemption from those regulations of this curriculum that are determined by the University.

15.2 Any applications for exemptions from the rules of the curriculum must state reasons and have relevant documentation attached.

§16 Course Credit Transfer

16.1 The Academic Study Board may allow that exams taken in other courses or at other universities replace exams in this curriculum.

16.2 Maximum two thirds of the credits of a Master degree can be transferred from courses passed in other countries than Denmark.

16.3 A Master Thesis can only entitle the student to one title. Once a student has obtained a title the Master Thesis cannot be transferred as credit to a different education.

16.4 The possibility of credit transfer depends on the Academic Study Board's evaluation of the applicant's individual academic standing.

16.5 If the content of elective courses overlaps with that of compulsory course elements of the IT Product Design programme, or overlaps with previously passed course elements, the course cannot be approved as an elective course or be credit transferred to the study programme.

16.6 It is possible to apply for transfer between related Master educations within the institution. The application should be addressed to the Student Service – Admission and Counseling.

§17 Complaint Procedure

17.1 Students may complain about examination results or other assessments that are part of the exam. Complaints may relate to 1) legal issues (that is whether a case has been treated in accordance with existing laws, and common administrative legal principles) 2) the examination basis, 3) the examination procedure and/or 4) the assessment, and must be submitted to the University by the student no later than 14 days after the results of the examination have been announced.

The complaint must be in writing, stating the reasons for the complaint. The complaint should be addressed to

TECH – Education & Quality Assurance
Faculty of Engineering
University of Southern Denmark
Campusvej 55, DK-5230 Odense M.

The University will base its decision concerning the complaint on the examiners' statements and the complainant's comments to these statements. The decision may find for a new assessment, for a re-examination, or against the complainant. A new assessment or re-examination may result in a lower mark than the original.

17.2 Students may complain against legal issues (that is whether a case has been treated in accordance with existing laws, and common administrative legal principles) in connection with the University's decision, including decisions taken by the Academic Study Board. Complaints concerning legal issues may be presented to the Danish University and Property Agency under the Ministry of Science, Technology and Innovation. The complaint must be submitted to the University within two weeks of the decision being announced to the student. The complaint must be in writing, stating the reasons for the complaint. The complaint should be sent to the above mentioned address.

§18 Legal Basis

18.1 This curriculum is organised according to the following Executive Orders issued by the Danish Ministry of Education:

- Executive Order No 695 of 22 June 2011 on the Act concerning universities (the University Act);
- Executive Order No 233 of 24 March 2011 on access etc. to bachelor and master programmes at universities (the Executive Order on Access);

- Executive Order No 814 of 29 June 2010 on bachelor and master programmes at universities (the Executive Order on Study Programmes)
- Executive Order No 857 of 1 July 2010 on examinations and censorship in university degree programmes (the Examination Executive Order); and
- Executive Order No 250 of 15 March 2007 on grading scales and other forms of assessment in university degree programmes (the Grading Executive Order).

§19 Validity

19.1 This curriculum applies to students, who begin their master programme at the Faculty of Engineering from 2012 and onwards. The students presently enrolled will be transferred to this curriculum.

19.2 This curriculum was approved by the Director of Studies and the Academic Study Board of the Faculty of Engineering, for entry into force on December 8 2011.

Appendix 1

Course	Exam Code
1 Semester Horizon	
Exploring Design	NA EXPL
IT Product Visions	NA VISO
Design Skills	NA SKIL
Design Specialisation A	NA SPEA
2 Semester Practice	
Participatory Innovation	IB PIN
Professional Roles	NA ROLE
Design for Complexity	COMP
Design Anthropology (elective)	ANTRO
Complexity of Innovation Leadership (elective)	CIL
Design Studies (elective)	NA DETH
Human Computer Interaction (elective)	ID HCI1
User Centred Design (elective)	NA UCD1
3 Semester Research	
User Experience Design	NA UED
Critical Reflection	NA CRIT
Interaction Research	NA IRES
Design Specialisation B	NA SPEB
4 Semester Thesis	
Thesis	NA THES

