SEMESTER DESCRIPTION

Master of Digital Health

AALBORG

1st semester

Autumn semester 2026

AALBORG UNIVERSITET

Department of Health Science and Technology

Study board for Health and Technology

Study Regulations/Curriculum:

https://studieordninger.aau.dk/2024/48/5163

Semester framework theme:

This is the initial semester out of four on the master program in digital health. It comprises three modules, each worth 5 ECTS.

1. Health and Social Science Research Methodologies and Communication. The students are introduced to the cross-disciplinary methodology and information seeking techniques they are to utilize in their digital health studies.

2. Directives, Regulations and Requirement for Digital Health Products. The students are presented with current knowledge about regulations and directives etc. that shape the use of health IT solutions with particular attention to AI.

3. Design, Development and Implementation of Digital Technologies in a Healthcare Context. The students are taught research-based theories, concepts and approaches to digital health technology with a focus on user-driven innovation.

Semester coordinator:

Sine Agergaard (sine@hst.aau.dk)

Secretariat assistance:

Programme Administrator:
Tinna Hjort (tilu@hst.aau.dk)

Study Board secretary:
Berit Lund Sørensen (blc@hst.aau.dk)

Content:

Semester organisation and time schedule

This semester consists of the following project and course modules:
https://studieordninger.aau.dk/2024/48/5163

Module type	Title	Module coordinator:	ECTS	Assessment
Course module	Directives, Regulations and Requirements for Digital Health Products (2026/2027)	Ulrike Sabine Pielmeier	5	7-point grading scale
Course module	Design, Development and Implementation of Digital Technologies in a Healthcare Context (2026/2027)	Ditte Weber	5	7-point grading scale
Course module	Health and Social Science Research Methodologies and Communication (2026/2027)	Sine Agergaard	5	7-point grading scale

Semester outline

The main activities during the semester are outlined here:

September	October	November	December	January
Semester group meeting (here)		**Semester group meeting** (here)		**Exam** (find the exam plan here)

Semester evaluation

The semester is evaluated in the following ways:

1. The students are invited to participate in two semester group meetings. The semester coordinator decides how the semester group meetings will be executed. The module coordinators are also invited.
2. The students will receive an electronic survey at the end of the semester in order to evaluate the semester and its activities. Time will be given to evaluate the previous semester at the beginning of the following semester.

3. Based on the above evaluations from the students, the semester coordinator will prepare a semester evaluation report which will be processed by the study board after the semester is completed.

Part time study

The programme is a part-time study, and the students are expected to spend approximately 20 hours per week on their studies (incl. exams and exam preparations).

The average student is expected to work 30 hours per ECTS.

In this way, a course module of 5 ECTS requires 150 hours of work incl. exam and its preparation.

Course module description I

DIRECTIVES, REGULATIONS AND REQUIREMENTS FOR DIGITAL HEALTH PRODUCTS

FORORDNINGER, REGULATIVER OG KRAV TIL BRUG AF DIGITALE SUNDHEDSTEKNOLOGISKE PRODUKTER

ECTS: 5

Course module coordinator:
Ulrike Pielmeier (upiel@hst.aau.dk).
Department of Health Science and Technology

Exam plan
Is located at Moodle:
https://www.moodle.aau.dk/course/view.php?id=59756

Primary teaching language:
English

Type of exam: Oral

Assessment: 7-point grading scale

Duration of examination: 20 minutes exam per student + 10 minutes vote

Participants in an oral exam:
☒ Exam supervisor
☒ Lecturer
☒ Internal co-assessor

Description of the practical conduct of the exam:

The exam is conducted: ☒ individually ☐ group-based

Exam language: Both Danish and English

The exam starts with a presentation from the student(s):
☒ Yes ☐ No ☐ Not relevant

At an oral exam the student draws one or more question(s):
☒ Yes ☐ No ☐ Not relevant

Permitted aids in the exam:
☒ Notes, literature, online books in offline condition, PC and calculator.

SCOPE AND EXPECTED WORK EFFORT

Activity	Number of hours spent on study activities in the module
Lectures	25
Workshop/group exercises	25
Exam	0,5
Exam preparation	30
Literature study	35
Individual homework	35

MODULE ACTIVITIES

Title	Lecturer and place of employment	Learning objectives from the programme curriculum
Standards, regulatory conditions and processes in the life cycle of digital health products 2 lectures Literature study Group exercise Individual homework	U. Pielmeier AAU	• Can account and describe the purpose of standards, regulatory conditions, documents, and organizations relevant for digital health products. • Can account for phases in regulatory life cycle of digital health products internationally and in Eu- rope, including organizational, practical, timing requirements and evidence related to quality control. • Can describe the standardization process and can account for the relevant standardization organizations.
Risk classification process and rules in the EU and internationally 1 lecture Literature study Group exercise Individual homework	U. Pielmeier AAU	• Can establish the necessary documentation for approval of digital health products. • Can identify risk classification for a digital health product and the associated classification requirements. • Can identify relevant standards for a given digital health product.
Clinical Evaluation: Good clinical practice, planning, management, documentation and roles 2 lectures,	U. Pielmeier AAU	• Can prepare a clinical evaluation plan, a risk management plan, and identify challenges in relation to regulatory approval of a digital health product. • Can identify relevant standards for a given digital health product.

Literature study Individual homework		
Artificial Intelligence: Special considerations for digital health products 1 lecture Literature study	S. Schmidt, AAU	• Can describe the special considerations for digital health products when based on artificial intelli- gence. • Can identify strategies for handling protection of personal data, cybersecurity, and requirements for traceability.
Risk Management and Quality Control 1 lecture Literature study Individual homework	U. Pielmeier AAU	• Can identify relevant standards for a given digital health product • Can prepare a clinical evaluation plan, a risk management plan, and identify challenges in relation to regulatory approval of a digital health product. • Can establish the necessary documentation for approval of digital health products.
Personal data protection, cybersecurity and requirements for traceability 1 lecture Literature study Individual homework	U. Pielmeier, AAU	• Can identify strategies for handling protection of personal data, cybersecurity, and requirements for traceability.

Literature

Literature list is found in Moodle.

https://www.moodle.aau.dk/course/view.php?id=59753

Course module description II

DESIGN, DEVELOPMENT AND IMPLEMENTATION OF DIGITAL TECHNOLOGIES IN A HEALTHCARE CONTEXT

PROJEKTLEDELSE AF DESIGN-, UDVIKLING- OG IMPLEMENTERINGSPROCESSER AF DIGITAL SUNDHED

ECTS: 5

Course module coordinator:
Ditte Weber (ditte@plan.aau.dk).
Department of Sustainability and Planning

Exam plan
Is located at Moodle:
https://www.moodle.aau.dk/course/view.php?id=59756

Primary teaching language:
English

Type of exam: Oral

Assessment: 7-point grading scale

Duration of examination: 20 minutes

Duration of potential preparation time: 20 minutes

5 days prior to the oral exam the students are presented with all exam questions. At the oral exam each student will draw one of these questions and have 20 minutes to prepare their initial presentation of the answers to the exam question.

Participants in an oral exam:
☒ Exam supervisor
☒ Lecturer
☒ Internal co-assessor

Description of the practical conduct of the exam:

The exam is conducted: ☒ individually ☐ group-based

Exam language: Both Danish and English

The exam starts with a presentation from the student(s):
☒ Yes ☐ No ☐ Not relevant

At an oral exam the student draws one or more question(s):
☒ Yes ☐ No ☐ Not relevant

Permitted aids in the exam:
☒ Everything incl. the internet (not for communication), notes, literature, online books, PC and calculator.

SCOPE AND EXPECTED WORK EFFORT

The students are introduced to research-based theories, concepts, and approaches within and to the management of user-driven innovation processes, with an emphasis on methods for facilitating the involvement of users and stakeholders (e.g., healthcare professionals, citizens/patients/family members, as well as system developers/owners) in the design and implementation related to change and digitalization in the healthcare sector.

The course emphasizes practical application with the aim of enabling students to participate in design, development, and implementation projects. The course will be a combination of physical attendance, online seminars and group work. The module is anchored within the Research Group for Techno-Anthropology & Participation, Department of Sustainability and Planning.

Activity	Number of hours spent on study activities in the module
Lectures	20
Workshop/group exercises	25
Group work	*25*
Exam and preparation	*30*
Individual work	*50*

MODULE ACTIVITIES

Lesson title, date, place	Lecturer(s)	Program for the day	Learning objectives (programme curriculum)
Day 1 – Introduction to design, development and implementation of digital technology in a healthcare setting – Participatory Design, User Innovation Management and Universel Design principles (hybrid)	Ditte Weber, Assistant Professor Clara Bender, Associate professor	*Morning session:* • Introduction to the course and participants. • Introduction to Participatory Design (PD) and User Innovation Management (UIM) *Afternoon session:* • Introduction to Universal Design Principles and exercise	Knowledge: Knowledge of project management and how they support user involvement in design, development, and implementation of digital health projects. Skills: Identify, select, and apply project management tools for planning of design, development and implementation of project processes. Apply design-oriented and creative methods in co-creation with different actors. Competences: Reflect on and account for how the various forms of involvement of stakeholders and design methods frame new technological design.
Day 2 – Design tools and methods for user involvement part 1 (virtual)	Ditte Weber, Assistant Professor Kristina Tornbjerg Eriksen, Assistant Professor Christian Nøhr, Professor	*Morning Session:* • Introduction to selected design tools and methods (Visual Tangible Artefacts, scenarios, cultural probes, personas, living lab, Transect Walk) *Afternoon Session:* • Introduction to use of photo – and video observation and analysis	Knowledge: Explain different technological innovation theories and concepts, methods, tools, perspectives and strategies for the design, development, and implementation of digital health technologies. Skills: Identify, select, and apply project management tools for planning of design, development and implementation of project processes. Apply design-oriented and creative methods in co-creation with different actors. Competences: Reflect on and account for how the various forms of involvement of stakeholders and design methods frame new technological design.
Day 3 – Design tools and methods for user involvement part 2 (virual)	Signe Pedersen, Associate Professor	*Morning Session:* • Staging negotiation games for re-designing local	Skills: Plan context-sensitive facilitation strategies to enhance the involvement of specific user groups in technological innovation. Apply design-oriented and creative methods in co-creation with different actors. Competences: Lead user involvement for design, development, or

	Ditte Weber, Assistant Professor	healthcare facilities and services *Afternoon session:* • Prototyping and usability testing	implementation of digital health innovation projects. Reflect on and account for how the various forms of involvement of stakeholders and design methods frame new technological design.
Day 4 – Mapping user needs and requirements in user involvement + implementation of technology in healthcare	Ditte Weber, Assistant Professor	*Morning session* • Sanders' design map and design thinking • Implementing PD-projects *Afternoon session:* • Participant presentations + course evaluation	Skills: Map user needs and user requirements for design, development, or implementation in relation to digital health innovation. Competences: Lead user involvement for design, development, or implementation of digital health innovation projects. Reflect on and account for how the various forms of involvement of stakeholders and design methods frame new technological design.

Literature

Literature list is found in Moodle.

https://www.moodle.aau.dk/course/view.php?id=59754

Course module description III

HEALTH AND SOCIAL SCIENCE RESEARCH METHODOLOGIES AND COMMUNICATION

SUNDHEDSVIDENSKABELIGE OG SAMFUNDSVIDENSKABELIGE METODER OG FORMIDLING

ECTS: 5

Course module coordinator:
Sine Agergaard (sine@hst.aau.dk).
Department of Health Science and Technology

Exam plan
Is located at Moodle:
https://www.moodle.aau.dk/course/view.php?id=59756

Primary teaching language:
English

Type of exam: Oral

Assessment: 7-point grading scale

Duration of examination: 20 minutes + 10 minutes vote

Duration of potential preparation time: 4 days before the oral exam the students are provided with a set of exam questions and case material asking them to prepare a presentation that is to initiate the oral exam.

Participants in an oral exam:
☐ Exam supervisor
☒ Lecturer
☒ Internal co-assessor

Description of the practical conduct of the exam:

The exam is conducted: ☒ individually ☐ group-based

Exam language: Both Danish and English

The exam starts with a presentation from the student(s):
☒ Yes ☐ No ☐ Not relevant

At an oral exam the student draws one or more question(s):
☐ Yes ☒ No ☐ Not relevant

Permitted aids in the exam:
☒ Notes, literature, online books in offline condition, PC and calculator.

SCOPE AND EXPECTED WORK EFFORT

Activity	Number of hours spent on study activities in the module
Lectures	24
Workshop/group exercises	24
Exam	2
Exam preparation	30
Literature readings	35
Individual homework	35

MODULE ACTIVITIES

Title	Lecturer and place of employment	Learning objectives from the programme curriculum
Basic principles in research processes and problem-based inquiry in digital health	(Sine Agergaard, AAU SUND)	• Can explain the principles of the research process in relation to the chosen scientific knowledge production method(s). • Can explain the possibilities and limitations of different types of study designs and methods with reference to the choices made in a study.
Different types of digital health research; knowledge paradigms, study designs and quality criteria.	(Sine Agergaard, AAU SUND)	• Can reflect on and critically relate to the knowledge that can be produced with different social and health science designs and methods. • Can independently explain the possibilities and limitations of different types of study designs and methods with reference to relevant quality criteria, cf. the choices made in a study. • Can discuss scientific quality criteria, in general, as well as in relation to different scientific designs and methods.
Descriptive research into digital health; hypothesis and quantitative method	(Steffen Frahm and Rocco Giordano, AAU SUND)	• Can argue for and select relevant study designs for exemplified hypothesis or problem formulation. • Can argue for connections between hypothesis or research questions, study designs, scientific method(s), and data.
Explanatory research into digital health; experimental design and interventions	(Steffen Frahm and Rocco Giordano, AAU SUND)	• Can explain in detail classic study designs and methods within health sciences and social sciences research. • Can argue for and select relevant study designs for exemplified hypothesis or problem formulation.
Interpretative research in digital health; qualitative research and the significance of context	(Sine Agergaard and Verena Lenneis, AAU SUND)	• Can argue for and select relevant study designs for exemplified hypothesis or problem formulation. • Can discuss and critically reflect on the connection between research questions and the choice of research design and methods – in general and in relation to specific studies.
Literature search, academic writing and critical reading	(Sine Agergaard, AAU SUND with support from AUB)	• Can discuss the advantages and disadvantages of different methods for structured coverage of a research area through systematic literature search, as well as critical reading and assessment of scientific literature. • Can communicate own research, both orally and in writing.

Transformative research in digital health; participatory design and methods	(Sine Agergaard and Verena Lenneis, AAU SUND)	• Can argue for and select relevant study designs for exemplified hypothesis or problem formulation. • Can reflect on and critically relate to the knowledge that can be produced with different social and health science designs and methods
Strength and limitations of different study designs; summing up and preparing the exam	(Sine Agergaard AAU SUND)	• Can explain the possibilities and limitations of different types of study designs and methods with reference to the choices made in a study.

Literature

Literature list is found in Moodle.

https://www.moodle.aau.dk/course/view.php?id=59755