



AALBORG UNIVERSITET

# **CURRICULUM FOR THE MASTER'S PROGRAMME IN INFORMATION TECHNOLOGY (IT DESIGN AND APPLICATION DEVELOPMENT) 2017**

MASTER OF SCIENCE (MSC) IN INFORMATION  
TECHNOLOGY  
AALBORG

MODULES INCLUDED IN THE CURRICULUM

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# DEVELOPMENT OF A SOFTWARE APPLICATION

**2018/2019**

## PREREQUISITE/RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

Course modules on iDA7

## CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

### Purpose:

The student should gain knowledge about issues and fundamental techniques for developing applications to solve realistic tasks, and gain experience in developing large systems, labour and quality control including testing.

### Reason:

The project module focuses on achieving skills with specific and predefined methods, languages and tools. The project module should ensure that students gain a common foundation on program development that can be utilized in the following semesters

## LEARNING OBJECTIVES

### KNOWLEDGE

- analyse and model the requirements of the object oriented paradigm
- structure an application in a multi-layer architecture using current program designs, realize and test the application in an object-oriented paradigm
- understand and use concepts and features in the paradigm and on this basis construct an application of high internal and external quality

### SKILLS

- implement systematic testing of the application and demonstrate that the application corresponds to the intentions and needs of users
- implement systematic evaluation of the user interface
- argue for the choices made in all the development process activities, including explaining requirements, architecture and how users are linked

### COMPETENCES

- develop a running application that solves the user's problem
- describe and reflect on the methods used in the development project

## TYPE OF INSTRUCTION

Project work, including:

- formulation, analysis and contribution to the resolution of a current research problem within the theme of the project module
- As an integrated part of the project work, the student must follow the Problem based learning and project management workshop (1 ECTS). Approved participation is required to register for the project exam, See enclosure 1.

## EXTENT AND EXPECTED WORKLOAD

It is expected that the student uses 30 hours per ECTS, which for this activity means 450 hours

## EXAM

### EXAMS

Name of exam	Development of a Software Application
Type of exam	Oral exam based on a project
ECTS	15
Assessment	7-point grading scale
Type of grading	Internal examination
Criteria of assessment	As indicated in the Faculty evaluation criteria

### FACTS ABOUT THE MODULE

Danish title	Udvikling af en softwareapplikation
Module code	DSNIDAK101
Module type	Project
Duration	1 semester
Semester	Autumn
ECTS	15
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg
Responsible for the module	<a href="#">Lone Leth Thomsen</a>

### ORGANISATION

Study Board	Study Board of Computer Science
Department	Department of Computer Science
Faculty	Technical Faculty of IT and Design

# SYSTEMS DEVELOPMENT

**2018/2019**

## CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

### LEARNING OBJECTIVES

#### KNOWLEDGE

Object-oriented modelling in analysis and design:

- modelling of context (application domain and problem domain)
- object-oriented concepts: class, object, event, structure, function, use patterns, component, component architecture
- UML: class diagram, state chart diagram, sequence diagram, diagram for use patterns

Modelling with patterns:

- patterns for modelling application and problem domains
- patterns for composing components
- specifically the patterns for analysis: object-descriptor, hierarchy, stepwise-role, materials, procedure
- specifically the patterns for design: collection, layered, observer, client-server, model-view-controller

System development methods:

- waterfall method and model-driven development
- iterative method and prototype-driven development
- activities in systems development and relations between activities

Systems practices:

- techniques to determine the specific method
- the relation between methodology and practice
- strengths and weaknesses of model-driven and prototype-driven development

#### SKILLS

- be able to explain accurately, using the concepts and modelling language of the discipline
- be able to model the requirements to a system, its context and all its various parts (model, features and interfaces)
- be able to model a system design at component level and describe relations between components.

#### COMPETENCES

- able to apply concepts, patterns and modelling language to describe a specific system that solves a well-defined task

#### TYPE OF INSTRUCTION

The teaching is organized according to the general teaching methods for the education, cf. chapter 3

#### EXTENT AND EXPECTED WORKLOAD

It is expected that the student uses 30 hours per ECTS, which for this activity means 150 hours

## EXAM

### EXAMS

Name of exam	Systems Development
Type of exam	Written or oral exam
ECTS	5
Assessment	7-point grading scale
Type of grading	Internal examination

### FACTS ABOUT THE MODULE

Danish title	Systemudvikling
Module code	DSNIDAFK102
Module type	Course
Duration	1 semester
Semester	Autumn
ECTS	5
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg
Responsible for the module	<a href="#">Lone Leth Thomsen</a>

### ORGANISATION

Study Board	Study Board of Computer Science
Department	Department of Computer Science
Faculty	Technical Faculty of IT and Design

# DESIGN AND EVALUATION OF USER INTERFACES

2018/2019

## CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

### LEARNING OBJECTIVES

#### KNOWLEDGE

Fundamentals of human-computer interaction:

- interaction design
- usability and user experience
- design principles
- interaction forms
- human cognition, perception and memory

Interaction design process:

- activities in interaction design
- user-centered design
- contextual design, participatory design
- different lifecycle models for interaction design

Use context and users:

- understand needs and requirements: e.g. interview, observation, questionnaire, probes, card sorting
- task analysis: e.g. hierarchical task analysis, objectives, tasks, actions
- scenarios and personas
- use patterns

Design of interfaces:

- visual design principles
- Gestalt laws
- sketching and prototyping
- conceptual and physical interface design

Usability evaluation:

- activities
- roles and tasks
- identification of usability problems

#### SKILLS

- understand basic and advanced concepts and theories of human-computer interaction
- be able to explain the activities in the design of an interface accurately
- be able to explain the activities of a usability evaluation

#### COMPETENCES

- be able to apply concepts, techniques and methods to design and evaluate a specific system that solves a well-defined task and discuss relations between concepts, techniques and methods in the subject.

#### TYPE OF INSTRUCTION

The teaching is organized according to the general teaching methods for the education, cf. chapter 3

## EXTENT AND EXPECTED WORKLOAD

It is expected that the student uses 30 hours per ECTS, which for this activity means 150 hours

## EXAM

### EXAMS

Name of exam	Design and Evaluation of User Interfaces
Type of exam	Written or oral exam
ECTS	5
Assessment	7-point grading scale
Type of grading	Internal examination

## ADDITIONAL INFORMATION

Contact: The Study board for Computer Science at [cs-sn@cs.aau.dk](mailto:cs-sn@cs.aau.dk) or 9940 8854

## FACTS ABOUT THE MODULE

Danish title	Design og evaluering af brugergrænseflader
Module code	DSNIDAK103
Module type	Course
Duration	1 semester
Semester	Autumn
ECTS	5
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg
Responsible for the module	<a href="#">Lone Leth Thomsen</a>

## ORGANISATION

Study Board	Study Board of Computer Science
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# INTRODUCTION TO PROGRAMMING

**2018/2019**

## CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

Students who complete the module should obtain a solid foundation in working with computers and other digital devices, which will be built upon in future coursework to enable programming for different media platforms.

Furthermore, to provide the student with a foundation and basic introduction for the systematic development of programs using object-oriented modelling and programming. The student should acquire an understanding of basic concepts and mechanisms in an object-oriented programming language such that the student is able to use the language and associated class library to implement small programs.

## LEARNING OBJECTIVES

### KNOWLEDGE

- Understanding of flow control structures, both logical (e.g., if, case), and loop (e.g., for, while)
- Understanding data types and structures (e.g., array, struct, list)
- Understanding functions
- Understanding basic principles of Object Oriented programming, such as using application programming interfaces (APIs) and the need to create custom classes
- Basic introduction to concepts of access (e.g., public, private, protected) and inheritance, composition and encapsulation
- Understanding of design methodologies for programming and understanding of the distinction between good and bad programming practices

### SKILLS

- Ability to apply knowledge to the design of a simple event-driven interactive interface, e.g., a simple game
- Interpret and analyse programming code and work out manually
- Ability to apply programming skills to the design and implementation of simple functions and classes
- Synthesize simple built-in functions and classes from APIs
- Ability to plan and perform systematic test of small programs (application)

### COMPETENCES

- evaluate small fragments of existing code, judge its design and recommend changes
- use object-oriented programming for solving specific small programming tasks

### TYPE OF INSTRUCTION

The teaching is organized according to the general teaching methods for the education, cf. chapter 3

### EXTENT AND EXPECTED WORKLOAD

It is expected that the student uses 30 hours per ECTS, which for this activity means 150 hours

## EXAM

### EXAMS

Name of exam	Introduction to Programming
Type of exam	Written or oral exam

ECTS	5
Assessment	Passed/Not Passed
Type of grading	Internal examination

## ADDITIONAL INFORMATION

Contact: The Study board for Computer Science at [cs-sn@cs.aau.dk](mailto:cs-sn@cs.aau.dk) or 9940 8854

## FACTS ABOUT THE MODULE

Danish title	Grundlæggende programmering
Module code	DSNIDAK104
Module type	Course
Duration	1 semester
Semester	Autumn
ECTS	5
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg
Responsible for the module	<a href="#">Lone Leth Thomsen</a>

## ORGANISATION

Study Board	Study Board of Computer Science
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# SOFTWARE ENGINEERING

2018/2019

## PREREQUISITE/RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

Course modules Systems Development and Design and Evaluation of User Interfaces.

## CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

### LEARNING OBJECTIVES

#### KNOWLEDGE

The student should gain knowledge of leading paradigms (e.g. traditional and agile) in professional development of software. The student should also gain knowledge of theories, methods and techniques involved in these paradigms (e.g. process modelling, management of requirements, design, project management, testing, process improvement) as well as an overview of theory of science for software engineering.

#### SKILLS

- the ability to explain course concepts precisely using the terminology of the discipline, and be able to distinguish between and compare the software engineering paradigms
- Be able to explain accurately and using the terminology of the discipline, the theories, methods and techniques of software engineering paradigms and their application in the professional development of software intensive systems

#### COMPETENCES

- be able to select, justify and use appropriate paradigms, theories, methods and techniques in their own development contexts.

#### TYPE OF INSTRUCTION

The teaching is organized according to the general teaching methods for the education, cf. chapter 3

#### EXTENT AND EXPECTED WORKLOAD

It is expected that the student uses 30 hours per ECTS, which for this activity means 150 hours

## EXAM

### EXAMS

Name of exam	Software Engineering
Type of exam	Written or oral exam
ECTS	5
Assessment	7-point grading scale
Type of grading	External examination

## ADDITIONAL INFORMATION

Contact: The Study board for Computer Science at [cs-sn@cs.aau.dk](mailto:cs-sn@cs.aau.dk) or 9940 8854

## FACTS ABOUT THE MODULE

Danish title	Software Engineering
Module code	DSNIDAFK203
Module type	Course
Duration	1 semester
Semester	Spring
ECTS	5
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg
Responsible for the module	<a href="#">Lone Leth Thomsen</a>

## ORGANISATION

Study Board	Study Board of Computer Science
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# SOFTWARE INNOVATION

**2018/2019**

## PREREQUISITE/RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

Thorough understanding of computer science principles that were presented in the previous semester.

## CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

In this context, software innovation implies the wide definition of innovation related to software development. Emphasis is on innovation, products and processes but also leadership of innovative work and personal and organizational prerequisites for innovation are included in the course.

### LEARNING OBJECTIVES

#### KNOWLEDGE

Software innovation theory:

- central theories about innovation and innovation processes
- personal and organizational conditions for innovation
- theories of software innovation

Innovation methods:

- general methods and techniques to support innovation
- specific methods and techniques for software innovation

Innovation practice:

- experience with methods and techniques in creative and innovative processes
- assessment of strengths and weaknesses of the methods and techniques for creative and innovative processes for software development

#### SKILLS

- able to explain theories accurately using professional concepts
- able to explain approaches to selection and management of innovative processes in software development
- able to discuss personal and organizational prerequisites for software innovation
- use own experience to explain and discuss tools and techniques supporting software innovation

#### COMPETENCES

- be able to assess the innovative potential of a software product or software-supported process.

#### TYPE OF INSTRUCTION

The teaching is organized according to the general teaching methods for the education, cf. chapter 3

#### EXTENT AND EXPECTED WORKLOAD

It is expected that the student uses 30 hours per ECTS, which for this activity means 150 hours

## EXAM

### EXAMS

Name of exam	Software Innovation
Type of exam	Written or oral exam
ECTS	5
Assessment	7-point grading scale
Type of grading	Internal examination
Criteria of assessment	As indicated in the Faculty evaluation criteria

## ADDITIONAL INFORMATION

Contact: The Study board for Computer Science at [cs-sn@cs.aau.dk](mailto:cs-sn@cs.aau.dk) or 9940 8854

## FACTS ABOUT THE MODULE

Danish title	Softwareinnovation
Module code	DSNDATFK205
Module type	Course
Duration	1 semester
Semester	Spring
ECTS	5
Language of instruction	Danish and English
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg
Responsible for the module	<a href="#">Lone Leth Thomsen</a>

## ORGANISATION

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# DATABASE DEVELOPMENT

**2018/2019**

## PREREQUISITE/RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

Basic knowledge of programming.

## CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

### LEARNING OBJECTIVES

#### KNOWLEDGE

- the relational data model and its concepts
- data modelling (ERD / UML)
- concept of operations
- integrity constraints including primary keys, promoting keys, checks and not null
- SQL language for defining databases, basic and advanced data extraction and modification of data
- Extracting information from a DBMS from a programming language such as PHP, Java or C #
- "best practice" for good design and use of DBMS and SQL
- Understand and use the advanced queries using more than two tables, e.g., for inner join, outer join, and the set operators

#### SKILLS

- be able to construct and evaluate a database design and database scheme
- demonstrate understanding of the relational data model and how to evaluate the model
- construct and evaluate complex queries in SQL and other relevant query languages
- constructing transactions that comply with relevant technical and commercial criteria
- Informally argue for the goodness/quality of the database design using knowledge on unnecessary repetition of information plus first and third normal form

#### COMPETENCES

- use a database management system (DBMS) to store and retrieve information
- use SQL from a conventional programming language

#### TYPE OF INSTRUCTION

The teaching is organized according to the general teaching methods for the education, cf. chapter 3

#### EXTENT AND EXPECTED WORKLOAD

It is expected that the student uses 30 hours per ECTS, which for this activity means 150 hours

## EXAM

### EXAMS

Name of exam	Database Development
Type of exam	Written or oral exam
ECTS	5

Assessment	Passed/Not Passed
Type of grading	Internal examination
Criteria of assessment	As indicated in the Faculty evaluation criteria

## ADDITIONAL INFORMATION

Contact: The Study board for Computer Science at [cs-sn@cs.aau.dk](mailto:cs-sn@cs.aau.dk) or 9940 8854

## FACTS ABOUT THE MODULE

Danish title	Databaseudvikling
Module code	DSNIDAK204
Module type	Course
Duration	1 semester
Semester	Spring
ECTS	5
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg
Responsible for the module	<a href="#">Lone Leth Thomsen</a>

## ORGANISATION

Study Board	Study Board of Computer Science
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# EMPIRICAL RESEARCH IN SOFTWARE DEVELOPMENT

2018/2019

## PREREQUISITE/RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

iDA8 project. The activity Software Development Research Methods must be followed in parallel or before.

## CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

### LEARNING OBJECTIVES

#### KNOWLEDGE

- Must have knowledge about the application of concepts, processes and theories from the activity Software Development Research Methods

#### SKILLS

- Must be able to identify, formulate and analyse a problem in context.
- Must be able to relate the problem definition to empirical research processes for software development.
- Must be able to identify and describe relevant empirical research processes to address the defined problem.
- Must be able to report on the findings of the empirical research processes

#### COMPETENCES

- Must document experience with empirical research processes to address knowledge creation on software development or software products.

### TYPE OF INSTRUCTION

The teaching is organized according to the general teaching methods for the education, cf. chapter 3

### EXTENT AND EXPECTED WORKLOAD

It is expected that the student uses 30 hours per ECTS, which for this activity means 600 hours

## EXAM

### EXAMS

Name of exam	Empirical Research in Software Development
Type of exam	Oral exam based on a project
ECTS	20
Assessment	7-point grading scale
Type of grading	External examination
Criteria of assessment	As indicated in the Faculty evaluation criteria

## ADDITIONAL INFORMATION

Contact: The Study board for Computer Science at [cs-sn@cs.aau.dk](mailto:cs-sn@cs.aau.dk) or 9940 8854

## FACTS ABOUT THE MODULE

Danish title	Empirisk forskning i softwareudvikling
Module code	DSNIDAK301
Module type	Project
Duration	1 semester
Semester	Spring
ECTS	20
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg
Responsible for the module	<a href="#">Lone Leth Thomsen</a>

## ORGANISATION

Study Board	Study Board of Computer Science
Department	Department of Computer Science
Faculty	Technical Faculty of IT and Design

# ENTREPRENEURSHIP

**2018/2019**

## PREREQUISITE/RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

Academic maturity corresponding to the level of bachelor in a software-related discipline.

## CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

### LEARNING OBJECTIVES

#### KNOWLEDGE

The student should achieve knowledge about entrepreneurship and business development related to software (information and communication technologies) including typically:

- different scientific approaches to entrepreneurship, including effectuation
- intra-/entrepreneurship
- competition and market conditions
- business models and business plans
- intellectual property rights
- market development and marketing
- growth strategies
- open entrepreneurship

#### SKILLS

- the ability to explain course concepts precisely using the professional terminology of the discipline
- the ability to use those concepts to explain practical and empirical (case based) contexts

#### COMPETENCES

- should be able to formulate, develop and present their own software-related business ideas to a qualified audience.

#### TYPE OF INSTRUCTION

The teaching is organized according to the general teaching methods for the education, cf. chapter 3

#### EXTENT AND EXPECTED WORKLOAD

It is expected that the student uses 30 hours per ECTS, which for this activity means 150 hours

## EXAM

### EXAMS

Name of exam	Entrepreneurship
Type of exam	Written or oral exam
ECTS	5
Assessment	Passed/Not Passed
Type of grading	Internal examination

Criteria of assessment	As indicated in the Faculty evaluation criteria
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## ADDITIONAL INFORMATION

Contact: The Study board for Computer Science at [cs-sn@cs.aau.dk](mailto:cs-sn@cs.aau.dk) or 9940 8854

## FACTS ABOUT THE MODULE

Danish title	Entreprenørskab
Module code	DSNDATFK302
Module type	Course
Duration	1 semester
Semester	Autumn
ECTS	5
Language of instruction	Danish and English
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg
Responsible for the module	<a href="#">Lone Leth Thomsen</a>

## ORGANISATION

Study Board	Study Board of Computer Science
Department	Department of Computer Science
Faculty	Technical Faculty of IT and Design

# MASTER'S THESIS

**2018/2019**

## CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

### LEARNING OBJECTIVES

#### KNOWLEDGE

- Must have knowledge about the application of concepts, processes and theories of software development

#### SKILLS

- Must be able to identify, formulate and analyse a problem in context.
- Must be able to relate the problem definition to empirical research processes for software development and argue for the relevance the problem in a wider context.
- Must be able to identify, explain and argue for the relevance and rigour of the chosen empirical research processes to address the defined problem.
- Must be able to report on the findings of the empirical research processes and explain the contributions to research and practice.
- Must be able to perform a literature review relevant to the defined problem.

#### COMPETENCES

- Must document experience with empirical research processes to address knowledge creation on software development or software products.
- Must have experience with research processes and research setting.

#### EXTENT AND EXPECTED WORKLOAD

It is expected that the student uses 30 hours per ECTS, which for this activity means 450 hours

## EXAM

### EXAMS

Name of exam	Master's Thesis
Type of exam	Oral exam based on a project
ECTS	30
Assessment	7-point grading scale
Type of grading	External examination
Criteria of assessment	As indicated in the Faculty evaluation criteria

## ADDITIONAL INFORMATION

Contact: The Study board for Computer Science at [cs-sn@cs.aau.dk](mailto:cs-sn@cs.aau.dk) or 9940 8854

## FACTS ABOUT THE MODULE

Danish title	Kandidatspeciale
Module code	DSNIDAFK401
Module type	Project
Duration	1 semester
Semester	Spring
ECTS	30
Language of instruction	English
Location of the lecture	Campus Aalborg
Responsible for the module	<a href="#">Lone Leth Thomsen</a>

## ORGANISATION

Study Board	Study Board of Computer Science
Department	Department of Computer Science
Faculty	Technical Faculty of IT and Design

# USER-CENTERED SOFTWARE DEVELOPMENT

**2018/2019**

## PREREQUISITE/RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

iDA7 project; SD; DEB; and programming skills

## CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

### LEARNING OBJECTIVES

#### KNOWLEDGE

- Must have knowledge about the application of concepts, processes and theories for user-centered development and software engineering

#### SKILLS

- Must be able to define a problem within user-centered software development and solve it
- Must be able to argue for the chosen requirements, design and implementation and how they relate
- Must be able to describe and explain how a chosen process solved the defined problem

#### COMPETENCES

- Must have experience with user-centered design
- Must have experience with selected processes for software engineering
- Can study, reflect on, and manage user-centered development processes

#### TYPE OF INSTRUCTION

The teaching is organized according to the general teaching methods for the education, cf. chapter 3

#### EXTENT AND EXPECTED WORKLOAD

It is expected that the student uses 30 hours per ECTS, which for this activity means 450 hours

## EXAM

### EXAMS

Name of exam	User-Centered Software Development
Type of exam	Oral exam based on a project
ECTS	15
Assessment	7-point grading scale
Type of grading	External examination

## ADDITIONAL INFORMATION

Contact: The Study board for Computer Science at [cs-sn@cs.aau.dk](mailto:cs-sn@cs.aau.dk) or 9940 8854

## FACTS ABOUT THE MODULE

Danish title	Brugercentreret softwareudvikling
Module code	DSNIDAK201
Module type	Project
Duration	1 semester
Semester	Spring
ECTS	15
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg
Responsible for the module	<a href="#">Lone Leth Thomsen</a>

## ORGANISATION

Study Board	Study Board of Computer Science
Department	Department of Computer Science
Faculty	Technical Faculty of IT and Design



# INNOVATIVE SOFTWARE DEVELOPMENT

**2018/2019**

## PREREQUISITE/RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

iDA7 project; SD; DEB; and programming skills

## CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

### LEARNING OBJECTIVES

#### KNOWLEDGE

- Must have knowledge about the application of concepts, processes and theories for innovation and software engineering

#### SKILLS

- Must be able to define a problem within innovative software development and solve it
- Must be able to argue for the chosen requirements, design and implementation and how they relate
- Must be able to describe and explain how a chosen process solved the defined problem

#### COMPETENCES

- Must have experience with creative processes for software innovation
- Must have experience with selected processes for software engineering
- Can study, reflect on, and manage innovative processes and development processes

#### TYPE OF INSTRUCTION

The teaching is organized according to the general teaching methods for the education, cf. chapter 3

#### EXTENT AND EXPECTED WORKLOAD

It is expected that the student uses 30 hours per ECTS, which for this activity means 450 hours

## EXAM

### EXAMS

Name of exam	Innovative Software Development
Type of exam	Oral exam based on a project
ECTS	15
Assessment	7-point grading scale
Type of grading	External examination

## ADDITIONAL INFORMATION

Contact: The Study board for Computer Science at [cs-sn@cs.aau.dk](mailto:cs-sn@cs.aau.dk) or 9940 8854

## FACTS ABOUT THE MODULE

Danish title	Innovativ softwareudvikling
Module code	DSNIDAK202
Module type	Project
Duration	1 semester
Semester	Spring
ECTS	15
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg
Responsible for the module	<a href="#">Lone Leth Thomsen</a>

## ORGANISATION

Study Board	Study Board of Computer Science
Department	Department of Computer Science
Faculty	Technical Faculty of IT and Design

# SPECIALISATION COURSE IN HUMAN-COMPUTER INTERACTION

**2018/2019**

## CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

### LEARNING OBJECTIVES

#### KNOWLEDGE

- achieve in-depth insight into key issues in contemporary research in human-computer interaction

#### SKILLS

Based on a scientific article in the course's central themes, the student should be able to:

- give a clear and understandable presentation of the article's key elements, including its premises, issue(s), theory, methods, results and conclusions
- explain relevant theories, methods and arguments presented in the article

#### COMPETENCES

Based on a scientific article in the course's central themes, the student should be able to:

- relate the theories, methods and results presented in the article to the course topics
- assess the proposed solutions, results and/or conclusions of the article as well as assess their qualities and practicality and put them into perspective.

### EXTENT AND EXPECTED WORKLOAD

It is expected that the student uses 30 hours per ECTS, which for this activity means 150 hours

## EXAM

### EXAMS

Name of exam	Specialisation Course in Human-Computer Interaction
Type of exam	Oral exam The student gives a lecture of 30 minutes on a defined scientific subject area (typically in the form of an article) in relation to issues addressed in the course. The selection of subject area and the framing of the task to each student are made by the course lecturer, usually in consultation with the student's project supervisor. The student is given 7 days of preparation. After the lecture, the examiner and censor can ask questions related to the student's presentation of the theme. This does not normally exceed 10 minutes.
ECTS	5
Assessment	7-point grading scale
Type of grading	External examination

Criteria of assessment	As indicated in the Faculty evaluation criteria
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## ADDITIONAL INFORMATION

Contact: The Study board for Computer Science at [cs-sn@cs.aau.dk](mailto:cs-sn@cs.aau.dk) or 9940 8854

## FACTS ABOUT THE MODULE

Danish title	Specialiseringskursus i menneske-maskine interaktion
Module code	DSNDATFK305
Module type	Course
Duration	1 semester
Semester	Autumn
ECTS	5
Language of instruction	Danish
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg
Responsible for the module	<a href="#">Lone Leth Thomsen</a>

## ORGANISATION

Study Board	Study Board of Computer Science
Department	Department of Computer Science
Faculty	Technical Faculty of IT and Design

# SPECIALISATION COURSE IN SYSTEMS DEVELOPMENT

**2018/2019**

## CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

### LEARNING OBJECTIVES

#### KNOWLEDGE

- achieve in-depth insight into key issues in contemporary research in systems development.

#### SKILLS

Based on a scientific article in the course's central themes, the student should be able to:

- give a clear and understandable presentation of the article's key elements, including its premises, issue(s), theory, methods, results and conclusions
- explain relevant theories, methods and arguments presented in the article

#### COMPETENCES

Based on a scientific article in the course's central themes, the student should be able to:

- relate the theories, methods and results presented in the article to the course topics
- assess the proposed solutions, results and/or conclusions of the article as well as assess their qualities and practicality and put them into perspective.

#### TYPE OF INSTRUCTION

The teaching is organized according to the general teaching methods for the education, cf. chapter 3

#### EXTENT AND EXPECTED WORKLOAD

It is expected that the student uses 30 hours per ECTS, which for this activity means 150 hours

## EXAM

### EXAMS

Name of exam	Specialisation Course in Systems Development
Type of exam	Oral exam The student gives a lecture of 30 minutes on a defined scientific subject area (typically in the form of an article) in relation to issues addressed in the course. The selection of subject area and the framing of the task to each student are made by the course lecturer, usually in consultation with the student's project supervisor. The student is given 7 days of preparation. After the lecture, the examiner and censor can ask questions related to the student's presentation of the theme. This does not normally exceed 10 minutes.
ECTS	5
Assessment	7-point grading scale

Type of grading	External examination
Criteria of assessment	As indicated in the Faculty evaluation criteria

## ADDITIONAL INFORMATION

Contact: The Study board for Computer Science at [cs-sn@cs.aau.dk](mailto:cs-sn@cs.aau.dk) or 9940 8854

## FACTS ABOUT THE MODULE

Danish title	Specialiseringskursus i systemudvikling
Module code	DSNDATFK308
Module type	Course
Duration	1 semester
Semester	Autumn
ECTS	5
Language of instruction	Danish and English
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg
Responsible for the module	<a href="#">Lone Leth Thomsen</a>

## ORGANISATION

Study Board	Study Board of Computer Science
Department	Department of Computer Science
Faculty	Technical Faculty of IT and Design