



AALBORG UNIVERSITET

# **MASTER OF SCIENCE (MSC) IN ENGINEERING (SOFTWARE) 2017**

MASTER OF SCIENCE (MSC) IN ENGINEERING  
AALBORG

MODULES INCLUDED IN THE CURRICULUM

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# INTERNETTEKNOLOGI

2018/2019

## MODULETS INDHOLD, FORLØB OG PÆDAGOGIK

### FORMÅL

Projektmodulets formål er at bidrage til, at de studerende opnår viden om og kan udvikle en internetapplikation, - agent, eller – service.

Internetapplikation, -agent eller – service skal forstås bredt og spænder fra de mere gængse internetapplikationer til autonome agenter og det såkaldte "Internet of Things", hvor internet teknologi benyttes til at knytte fysiske objekter, så som husholdningselektronik, sammen, hvor der ikke nødvendigvis er en traditionel browser baseret brugergrænseflade.

### BEGRUNDELSE

Internet, internetteknologi, internetservices og internetapplikationer er centrale teknologiske elementer i samfundet i dag.

### LÆRINGSMÅL

#### VIDEN

- demonstrere viden om og forståelse af internet, internetteknologier samt internetservices
- forstå og udnytte internet begreber
- analysere og modellere krav til internetapplikationsudvikling
- strukturer en applikation i en flerlags arkitektur og ved hjælp af gængse program mønstre
- designe, realisere og afteste en internetapplikation, - agent eller - service

#### FÆRDIGHEDER

- gennemføre systematisk aftestning af applikationen og påvise at applikationen svare til intentioner og brugernes behov
- gennemføre systematisk evaluering af brugergrænsefladen
- argumentere for trufne valg i alle udviklingsprocessens aktiviteter herunder forklarer krav, arkitektur og brugeres behov hænger sammen
- demonstrere færdigheder i udvikling af en internetapplikation, - agent, eller – service af høj, intern og ekstern kvalitet, hvor der fokuseres på en skalérbar arkitektur, passende brugergrænseflade samt "quality of service"

#### KOMPETENCER

- udvikle en kørende internet applikation, - agent eller – service som løser brugernes problem
- beskrive og reflektere over den anvendte arbejdsform i udviklingsprojektet

#### UNDERVISNINGSFORM

Projektarbejder, projektet skal omfatte:

- en analyse af en problemstilling, hvis løsning naturligt kan beskrives i form af analyse, design og realisering af en konkret internet applikation, - agent eller – service
- design, realisering og aftestning af en internet applikation, agent eller – service
- refleksion over egen udviklingsproces

#### OMFANG OG FORVENTET ARBEJDSINDSAT

Det forventes at den studerende bruger 30 timer per ECTS, hvilket for denne aktivitet betyder 450 timer.

## EKSAMEN

### PRØVER

Prøvens navn	Internetteknologi
Prøveform	Mundtlig pba. projekt
ECTS	15
Bedømmelsesform	7-trins-skala
Censur	Intern prøve
Vurderingskriterier	Som angivet i Fakultets vurderingskriterier <a href="http://www.tech.aau.dk/digitalAssets/337/337434_vurderingskriterier.pdf">http://www.tech.aau.dk/digitalAssets/337/337434_vurderingskriterier.pdf</a>

## YDERLIGERE INFORMATIONER

Kontakt: Studienævn for datalogi via [cs-sn@cs.aau.dk](mailto:cs-sn@cs.aau.dk) eller 9940 8854

## FAKTA OM MODULET

Engelsk titel	Internet Technology
Modulkode	DSNSWK101
Modultype	Projekt
Varighed	1 semester
Semester	Efterår
ECTS	15
Tomplads	Ja
Undervisningssted	Campus Aalborg
Modulansvarlig	<a href="#">Lone Leth Thomsen</a>

## ORGANISATION

Studienævn	Studienævnet for Datalogi
Institut	Institut for Datalogi
Fakultet	Det Tekniske Fakultet for IT og Design

# PROGRAMMING PARADIGMS

**2018/2019**

## PREREQUISITE/RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

Knowledge of Imperative Programming and Object Oriented Programming

## CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

### LEARNING OBJECTIVES

#### KNOWLEDGE

The student will acquire knowledge of programming paradigms that are alternative and complementary to the imperative paradigm and the object oriented paradigm. Furthermore, students should acquire knowledge on advanced topics in design, implementation and use of programming languages and environments, including

- function-oriented programming
- programming language with dynamic types
- programming techniques in the field of one or more of the four main paradigms: the function-oriented, the imperative, the object-oriented and the logic programming paradigms

#### SKILLS

- be able to classify and explain the structures in programming languages in relation to the paradigms
- be able to relate language constructions that support different paradigms
- be able to assess the strengths and weaknesses of each paradigm in relation to specific tasks

#### COMPETENCES

- be able to use paradigmatic constructions in smaller programmes.

#### 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	Programming Paradigms
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	Programmeringsparadigmer
Module code	DSNDATFK105
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

# MOBILE SYSTEMER

2018/2019

## MODULETS INDHOLD, FORLØB OG PÆDAGOGIK

### FORMÅL

Projektmodulets formål er at bidrage til at de studerende kan opnå viden om og udvikle mobile applikationer og services. Mobile applikationer og services skal forstås bredt; de er specielt kendetegnet ved anvendelse af udstyr med begrænsede ressourcer i form af skærm, interaktion, processor og hukommelse. Det er samtidig applikationer, som med et begrænset strømforbrug kan udnytte trådløs kommunikation med andet udstyr og servere, og at brugerne og udstyret er mobile, dvs. kan flytte sig. Mobile applikationer og services finder anvendelse i en lang række situationer og omgivelser hvor stationære teknologier ikke kan anvendes.

### BEGRUNDELSE

Mobile teknologier, -applikationer og -services er i dag centrale teknologiske elementer i samfundet, organisationer og for det enkelte menneske.

### LÆRINGSMÅL

#### VIDEN

- demonstrere viden om og forståelse af mobile teknologiers anvendelse, mobile applikationer og services
- forstå og udnytte begreber om mobile applikationer og services
- analysere og modellere krav til en mobil applikation eller service
- strukturere en applikation eller service i en relevant software arkitektur ved hjælp af gængse designmønstre
- designe, realisere, afteste og evaluere en mobil applikation eller service
- forstå og forklare hvad der specielt ved mobile applikationer og services

#### FÆRDIGHEDER

- gennemføre analyse, design, programmering og evaluering af mobile applikationer og services
- demonstrere og anvende teknikker, modeller, metoder og værktøjer til udvikle mobile applikationer og services
- argumentere for de valg, der træffes i alle udviklingsprocessens aktiviteter, og herunder forklare hvordan krav, arkitektur og brugernes behov hænger sammen
- udvikle en mobil applikation eller service under anvendelse af minimal ressourcer så som skærm, interaktion, processor, strømforbrug og hukommelse samt udnytte trådløs kommunikation med andet udstyr eller servere og de mobile muligheder så som lokation og brugernes mobilitet

#### KOMPETENCER

- udvikle en kørende mobil applikation eller service som løser brugernes problem
- beskrive og reflektere over den anvendte arbejdsform i udviklingsprojektet

#### UNDERVISNINGSFORM

Projektarbejde, hvor projektet skal omfatte:

- en analyse af en problemstilling, hvis løsning naturligt kan beskrives i form af analyse, design og realisering af en konkret mobil applikation eller service
- design, realisering, aftestning og evaluering af en mobil applikation eller service
- refleksion over den udviklingsproces, der har fundet sted

#### OMFANG OG FORVENTET ARBEJDSINDSAT

Det forventes at den studerende bruger 30 timer per ECTS, hvilket for denne aktivitet betyder 450 timer.

## EKSAMEN

### PRØVER

Prøvens navn	Mobile systemer
Prøveform	Mundtlig pba. projekt
ECTS	15
Bedømmelsesform	7-trins-skala
Censur	Ekstern prøve
Vurderingskriterier	Som angivet i Fakultets vurderingskriterier <a href="http://www.tech.aau.dk/digitalAssets/337/337434_vurderingskriterier.pdf">http://www.tech.aau.dk/digitalAssets/337/337434_vurderingskriterier.pdf</a>

## YDERLIGERE INFORMATIONER

Kontakt: Studienævn for datalogi via [cs-sn@cs.aau.dk](mailto:cs-sn@cs.aau.dk) eller 9940 8854

## FAKTA OM MODULET

Engelsk titel	Mobile Systemer
Modulkode	DSNSWK201
Modultype	Projekt
Varighed	1 semester
Semester	Forår
ECTS	15
Tomplads	Ja
Undervisningssted	Campus Aalborg
Modulansvarlig	<a href="#">Lone Leth Thomsen</a>

## ORGANISATION

Studienævn	Studienævnet for Datalogi
Institut	Institut for Datalogi
Fakultet	Det Tekniske Fakultet for IT og Design



# 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

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

# **FORSPECIALISERING**

**2018/2019**

## **FORUDSÆTNINGER/ANBEFALEDE FORUDSÆTNINGER FOR AT DELTAGE I MODULET**

Anbefalede faglige forudsætninger:

Projekt- og kursusmodulerne på 1. og 2. semester af KA samt at et kursusmodul fra 3. semester KA følges parallelt med projektarbejdet

## **MODULETS INDHOLD, FORLØB OG PÆDAGOGIK**

### **FORMÅL**

At den studerende får indsigt i og kan formidle et aktuelt forskningsproblem inden for datalogi, således at den studerende på 4. semester kan lave sit speciale projekt på baggrund heraf

### **BEGRUNDELSE**

Universitetsuddannelser er forskningsbaserede uddannelser; alle studerende skal på kandidatuddannelsen opnå dybtgående indsigt i forskningens aktuelle problemstilling og metoder

## **LÆRINGSMÅL**

### **VIDEN**

- dokumentere dybtgående kendskab til og overblik over en aktuell problemstilling inden for datalogisk forskning

### **FÆRDIGHEDER**

- ræsonnere om og med de berørte begreber og teknikker
- anvende og skabe teoridannelser inden for fagområdet i forbindelse med formulering af og analyse af et problem inden for datalogisk forskning
- formidle en aktuell datalogisk problemstilling og det tilhørende begrebsapparat inden for forskningsområdets rammer

### **KOMPETENCER**

- anvende begreberne og ræsonnementerne inden for fagområdet til at formulere og analysere et problem inden for en aktuell problemstilling i datalogisk forskning

## **UNDERVISNINGSFORM**

Projektarbejde, der skal omfatte:

- formulering og analyse af et problem inden for en aktuell problemstilling i datalogisk forskning
- begrundede overvejelser om løsning af dette problem

## **OMFANG OG FORVENTET ARBEJDSINDSAT**

Det forventes at den studerende bruger 30 timer per ECTS, hvilket for denne aktivitet betyder 600 timer.

## EKSAMEN

### PRØVER

Prøvens navn	Forspecialisering
Prøveform	Mundtlig pba. projekt
ECTS	20
Bedømmelsesform	7-trins-skala
Censur	Ekstern prøve
Vurderingskriterier	Som angivet i Fakultets vurderingskriterier <a href="http://www.tech.aau.dk/digitalAssets/337/337434_vurderingskriterier.pdf">http://www.tech.aau.dk/digitalAssets/337/337434_vurderingskriterier.pdf</a>

## YDERLIGERE INFORMATIONER

Kontakt: Studienævn for datalogi via [cs-sn@cs.aau.dk](mailto:cs-sn@cs.aau.dk) eller 9940 8854

## FAKTA OM MODULET

Engelsk titel	Pre-specialisation
Modulkode	DSNDATFK301
Modultype	Projekt
Varighed	1 semester
Semester	Efterår
ECTS	20
Undervisningssted	Campus Aalborg
Modulansvarlig	<a href="#">Lone Leth Thomsen</a>

## ORGANISATION

Studienævn	Studienævnet for Datalogi
Institut	Institut for Datalogi
Fakultet	Det Tekniske Fakultet for IT og 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

# KANDIDATSPECIALE

**2018/2019**

## MODULETS INDHOLD, FORLØB OG PÆDAGOGIK

### FORMÅL

At den studerende selvstændigt, systematisk og kritisk gennem anvendelse af videnskabelig teori og metode kan formulere, analysere og bidrage til løsning af et aktuelt forskningsproblem inden for datalogi

### BEGRUNDELSE

Universitetsuddannelser er forskningsbaserede uddannelser; alle studerende skal på kandidatuddannelsen opnå dybtgående indsigt i forskningens aktuelle problemstilling og metoder, således at denne indsigt kan bringes til anvendelse i løsning af problemer inden for forskning

### LÆRINGSMÅL

#### VIDEN

- dokumentere dybtgående kendskab til og overblik over en aktuell problemstilling inden for datalogisk forskning og dennes mulige løsninger

#### FÆRDIGHEDER

- ræsonnere om og med de berørte begreber og teknikker
- anvende og skabe teoridannelser inden for fagområdet i forbindelse med formulering af og analyse og løsning af et problem inden for datalogisk forskning
- formidle en aktuell datalogisk problemstilling, et bidrag til dens løsning og det tilhørende begrebsapparat inden for forskningsområdets rammer

#### KOMPETENCER

- anvende begreberne og ræsonnementerne inden for fagområdet til at formulere, analysere og bidrage til løsning af et problem inden for en aktuell problemstilling i datalogisk forskning

#### UNDERVISNINGSFORM

Projektarbejde, der skal omfatte:

- formulering, analyse og bidrag til løsning af et aktuelt forskningsproblem, normalt inden for det område af datalogi, som var emnet for projektmodulet på 3. semester af KA

#### OMFANG OG FORVENTET ARBEJDSINDSAT

Det forventes at den studerende bruger 30 timer per ECTS, hvilket for denne aktivitet betyder 900 timer.

## EKSAMEN

### PRØVER

Prøvens navn	Kandidatspeciale
Prøveform	Mundtlig pba. projekt
ECTS	30

Bedømmelsesform	7-trins-skala
Censur	Ekstern prøve
Vurderingskriterier	Som angivet i Fakultets vurderingskriterier <a href="http://www.tech.aau.dk/digitalAssets/337/337434_vurderingskriterier.pdf">http://www.tech.aau.dk/digitalAssets/337/337434_vurderingskriterier.pdf</a>

## YDERLIGERE INFORMATIONER

Kontakt: Studienævn for datalogi via [cs-sn@cs.aau.dk](mailto:cs-sn@cs.aau.dk) eller 9940 8854

## FAKTA OM MODULET

Engelsk titel	Master's Thesis
Modulkode	DSNDATFK401
Modultype	Projekt
Varighed	1 semester
Semester	Forår
ECTS	30
Undervisningssprog	Dansk
Undervisningssted	Campus Aalborg
Modulansvarlig	<a href="#">Lone Leth Thomsen</a>

## ORGANISATION

Studienævn	Studienævnet for Datalogi
Institut	Institut for Datalogi
Fakultet	Det Tekniske Fakultet for IT og Design



# DATA-INTENSIVE SYSTEMS

**2018/2019**

## CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

### LEARNING OBJECTIVES

#### KNOWLEDGE

Students should achieve knowledge on the following topics in data-intensive systems:

- concepts and techniques for analyzing large data volumes, such as data warehousing, On-Line Analytical Processing, and Data Mining
- concepts and techniques for handling spatio-temporal data, including indexing and processing of queries
- concepts and techniques for scalability for data-intensive systems, e.g., cloud computing

Topics will typically be exemplified by Internet-related application, such as web analytics, spatial web, and the like.

There will also be one or more optional subjects within data-intensive systems, including but not limited to:

- concepts and techniques for managing web-related data such as XML, Semantic Web, and Web2.0 data
- concepts and techniques for search engines

#### SKILLS

- be able to explain concepts and techniques in data-intensive systems
- be able to select and apply relevant concepts and techniques for a given problem in data-intensive systems

#### COMPETENCES

- be able to apply concepts and techniques from data-intensive systems, including design and implementation of data-intensive systems.

#### 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	Data-Intensive Systems
Type of exam	Written or oral exam
ECTS	5
Assessment	7-point grading scale
Type of grading	Internal examination
Criteria of assessment	Are stated in the Joint Programme Regulations

## 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	Dataintensive systemer
Module code	DSNSWFK102
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

# WEB ENGINEERING

**2018/2019**

## CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

### LEARNING OBJECTIVES

#### KNOWLEDGE

The student should gain knowledge of developing web applications:

- types of web applications and their use (eg. Data-intensive, service-oriented collaboration, integration, social)
- types of web technologies
- methods for developing web applications
  - Requirements, design, implementation and testing techniques
  
- Patterns for web applications
  
- Development of web applications
  
- advanced topics in web development, for example.:
  - Service-oriented architecture
  
- Semantic web
  
- Rich Internet Applications
  
- New trends

#### SKILLS

- demonstrate knowledge of web applications, web development and web architecture
- perform model-based analysis of web applications
- apply methods for developing web applications, including requirements, design, implementation and testing techniques

#### COMPETENCES

- be able to apply concepts and techniques from Web engineering, including web applications and development and architecture, requirements, design, implementation, and testing techniques.

#### 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	Web Engineering
Type of exam	Written or oral exam
ECTS	5
Assessment	7-point grading scale
Type of grading	Internal examination
Criteria of assessment	Are stated in the Joint Programme Regulations

## 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	Web engineering
Module code	DSNSWFK103
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

# WEB INTELLIGENCE

**2018/2019**

## PREREQUISITE/RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

Knowledge of discrete mathematics, algorithms and data structures

## CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

### LEARNING OBJECTIVES

#### KNOWLEDGE

knowledge and skills within web intelligence techniques, such as:

- Application of web intelligence techniques
- Web agents and web services
- Web information retrieval
- Web navigation support
- Recommender systems
- Intelligence for social web
- Presentation of knowledge and semantic web
- User modelling, adaptation and personification
- Computational natural language processing for web

#### SKILLS

- Demonstrate knowledge about web intelligence methods and techniques
- Chose relevant concepts and techniques within a given web system problem
- Use correct notation and terminology for web intelligence.

#### COMPETENCES

- be able to apply web intelligence methods and techniques, including design and implementation of web systems.

### 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	Web Intelligence
Type of exam	Written or oral exam
ECTS	5
Assessment	7-point grading scale

Type of grading	Internal examination
Criteria of assessment	Are stated in the Joint Programme Regulations

## 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	Web Intelligence
Module code	DSNSWFK104
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

# MOBILE SOFTWARE TECHNOLOGY

**2018/2019**

## PREREQUISITE/RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

Knowledge and skills in object oriented programming, algorithms and data structures, database systems and design and evaluation of user interfaces.

## CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

### LEARNING OBJECTIVES

#### KNOWLEDGE

within development of mobile software:

- issues relating to architecture and programming of mobile software, such as stand-alone, client / server and peer to peer
- positioning and tracking both indoors and outdoors
- mobile services and location-based services
- mobile databases
- interaction design for mobile technologies
- usability and user experience evaluation of mobile technologies

In addition, the following items may be included in the course:

- indoor / outdoor integration
- Middleware platforms for mobile services
- design sketching for mobile technologies
- paper prototype development for mobile technologies
- lab. vs. field-based evaluation of mobile technologies

#### SKILLS

- design software architectures for mobile applications
- use positioning and tracking techniques in various indoor and outdoor scenarios
- explain the principles for mobile databases
- explain the principles of moving object databases
- produce and refine the interaction design for mobile systems, services or devices
- evaluate the quality of an interaction design empirical

#### COMPETENCES

- learn typical technologies and interaction design principles for mobile software systems and be able to use these technologies and principles in various mobile application scenarios.

#### 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	Mobile Software Technology
Type of exam	Written or oral exam
ECTS	5
Assessment	7-point grading scale
Type of grading	Internal examination
Criteria of assessment	Are stated in the Joint Programme Regulations

## 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	Mobil softwareteknologi
Module code	DSNSWFK202
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

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



# ADVANCED PROGRAMMING

**2018/2019**

## PREREQUISITE/RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

Programming experience and knowledge of imperative and object-oriented programming. Knowledge about language design and compiler construction.

## CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

### LEARNING OBJECTIVES

#### KNOWLEDGE

knowledge of advanced programming technologies and techniques, including elements of the programming language that supports these techniques. The course will focus on both new trends in programming, and on classic advanced themes. Possible topics include:

- advanced libraries
- library design
- syntactic abstraction (macros) and language extensions
- declarative programming
- generic programming
- concurrent, parallel and distributed programming
- reactive programming
- typed and typeless programming
- scripting
- module concepts
- different hardware platforms
- resource
- optimizations
- performance studies

## SKILLS

- achieve skills in selecting appropriate programming tools for a given task.
- be able to write correct, efficient and maintainable programs.
- be able to assess use of resources and to perform optimizations and performance studies.

## COMPETENCES

- be able to solve advanced 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	Advanced Programming
Type of exam	Written or oral exam
ECTS	5
Assessment	7-point grading scale
Type of grading	Internal examination
Criteria of assessment	Are stated in the Joint Programme Regulations

## 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	Avanceret programmering
Module code	DSNSWFK203
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

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

# TEST AND VERIFICATION

**2018/2019**

## PREREQUISITE/RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

Knowledge and skills in computer architecture, principles of parallelism, concurrency and operating systems, and syntax and semantics.

## CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

### LEARNING OBJECTIVES

#### KNOWLEDGE

knowledge on the following theories and methods:

Testing:

- classical test techniques, models for formal testing, software tools for automated testing, test specification, test generation and test execution

verification:

- formal models of software systems behavior, software tools for verification

#### SKILLS

- explain accurately and using the subject's terminology and notation for properties and behavior of formal models of software systems
- apply relevant techniques to plan and conduct tests

#### COMPETENCES

The student should by synthesis of the concepts and techniques of the discipline be able to:

- describe key aspects of a software system using formal models
- assess the usefulness of various test techniques in a software system in a given context

#### 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	Test and Verification
Type of exam	Written or oral exam

ECTS	5
Assessment	7-point grading scale
Type of grading	Internal examination
Criteria of assessment	Are stated in the Joint Programme Regulations

## 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	Test og verifikation
Module code	DSNSWFK204
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

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

# SPECIALISATION COURSE IN DATABASE TECHNOLOGY

**2018/2019**

## CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

### LEARNING OBJECTIVES

#### KNOWLEDGE

- achieve in-depth insight into key issues in contemporary research in database technology.

#### 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 issues, including its premises, problem(s), theory, methods, results and conclusions
- explain relevant / key 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 Database Technology
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	Are stated in the Joint Programme Regulations

## 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 databaseteknologi
Module code	DSNDATFK303
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

# SPECIALISATION COURSE IN DISTRIBUTED SYSTEMS

## 2018/2019

### CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

#### LEARNING OBJECTIVES

##### KNOWLEDGE

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

##### 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 issues, including its premises, problem(s), theory, methods, results and conclusions
- explain relevant / key 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 Distributed Systems
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	External examination



grading	
Criteria of assessment	Are stated in the Joint Programme Regulations

## 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 distribuerede systemer
Module code	DSNDATFK304
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

# 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 SEMANTIC AND VERIFICATION

**2018/2019**

## CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

### LEARNING OBJECTIVES

#### KNOWLEDGE

- achieve in-depth insight into key issues in contemporary research in mathematical models for formal description and verification of programmes, software systems and programming languages.

#### 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 issues, including its premises, problem(s), theory, methods, results and conclusions
- explain relevant / key 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 Semantic and Verification
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	Are stated in the Joint Programme Regulations

## 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 semantik og verifikation
Module code	DSNDATFK306
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

# SPECIALISATION COURSE IN MACHINE INTELLIGENCE

## 2018/2019

### CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

#### LEARNING OBJECTIVES

##### KNOWLEDGE

- achieve in-depth insight into key issues in contemporary research in machine intelligence, such as datamining and machine learning, graphical models, and intelligent web systems.

##### 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 issues, including its premises, problem(s), theory, methods, results, and conclusions
- explain relevant / key 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 Machine Intelligence
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	Are stated in the Joint Programme Regulations

## 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 maskinintelligens
Module code	DSNDATFK307
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

# 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

# SPECIALISATION COURSE IN PROGRAMMING TECHNOLOGY

**2018/2019**

## CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

### LEARNING OBJECTIVES

#### KNOWLEDGE

- achieve in-depth insight into key issues in contemporary research in programming technology.

#### 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 issues, including its premises, problem(s), theory, methods, results and conclusions
- explain relevant / key 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 Programming Technology
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	Are stated in the Joint Programme Regulations

## 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 programmeringsteknologi
Module code	DATDSNFK309
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