KØBENHAVNS ERHVERVSAKADEMI

Curriculum for Computer Science

2019

Academy Profession Degree Programme (AP programme)
in information technology
AP Degree in Computer Science

August 2019 v2

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1. Curriculum framework

This is a translated version of the Danish curriculum. In case of any discrepancies between this curriculum and the Danish curriculum, the text in the Danish curriculum applies.

The following acts and ministerial orders apply to the programme:

Danish (Consolidated) Act on Academies of Professional Higher Education

Danish (Consolidated) Act on Academy Profession Programmes and Professional Bachelor Programmes

Ministerial Order on Technical and Commercial Academy Profession Programmes and Professional Bachelor Programmes.

Ministerial Order on Examinations on Professionally Oriented Higher Education Programmes

Ministerial Order on Admission to and Enrolment on Academy Profession Programmes and Professional Bachelor Programmes (the Admissions Order).

Ministerial Order on the Grading Scale and Other Forms of Assessment of Study Programmes Offered under the Ministry of Higher Education and Science.

1.1.Effective date

1 August 2019

1.2.Transitional arrangements

For students admitted to the program up until the spring of 2019, the examination regulations of the 2015 curriculum will apply. For anyone admitted from August 2019, this curriculum will apply.

1.3.The programme's intended learning outcome:

Knowledge

The graduate has:

- development-based knowledge about applied practice, theory and method in relation to soft ware development and of relevance to the profession

- understanding of fundamental company operations in relation to systems development
- understanding of the technological concepts and the technological platform of computer systems in relation to programming, error tracing and commissioning.

Skills

The graduate is able to:

- apply key approaches and tools characteristic of this discipline to methodically identify requirements to IT systems, comprising assessment of whether the requirements are feasible within the set framework

- apply up-to-date programming techniques and tools for software building, including ensure the quality of the developed product, as is relevant for the profession

- present the work carried out and communicate practice-oriented problems and solutions in a form that renders the documentation useful for partners and users

- apply relevant knowledge in connection with systems development, programming and commissioning

- apply the skills associated with professional practice to systematically perform error tracing and error repairs in connection with IT systems

- assess practice-related problems in relation to computer systems and select solution options

Competencies
The graduate is able to:

- manage a process for development of a system applying up-to-date methods, techniques and tools

- participate in a technical and multidisciplinary cooperation and project work developing software with a professional approach and participate in the development of the practical aspects of software development

- in a structured context acquire new knowledge, skills and competencies in relation to the IT industry, including domain knowledge and technological knowledge and application of new methods, techniques and tools.

2.Admission

Admission to the programme is in accordance with the rules of the admission order.

3.National and local programme elements

3.1.Sequencing of programme elements, internship and exams

Overview of the sequencing of programme elements

	First semester	Second semester	Third semester	Fourth semester	Fifth semester
Programming	15 ECTS	15 ECTS			
Systems Development	10 ECTS	5 ECTS			
Technology		5 ECTS			
Understanding Business	5 ECTS	5 ECTS			
Programming 2			10 ECTS		
Systems Development 2			10 ECTS		
Technology 2			10 ECTS		
Electives				30 ECTS	
Internship					15 ECTS
Final exam project					15 ECTS

Overview of all exams and their sequencing
All programme elements complete with an exam.

Sequencing	**Exam**	**90 ECTS distributed on the exams**	**Internal/External**	**Assessment**
First semester	First part-exam of the 1st-year exam: Programming	15	**External**	7-point grading scale Weighted 25% of the total first-year grade First part-exam must be passed.
Second semester	Second part-exam of the 1st-year exam: Programming	45	**External**	7-point grading scale Weighted 75% of the total first-year grade

	Systems Development Technology Understanding Business			Second part-exam must be passed.
Third semester	First part exam of the 3rd-semester exam: Systems Development 2	10	Internal	7-point grading scale
Third semester	Second 3-semester part-exam: Technology 2	10	Internal	7-point grading scale
Third semester	Third part-exam of the 3rd-semester exam: Programming 2	10	Internal	7-point grading scale
Fourth semester	Electives	30	Internal	7-point grading scale
Fifth semester	Internship	15	Internal	7-point grading scale
Fifth semester	Final exam project	15	External	7-point grading scale

Information about the time and place of the exams can be found in KEA's digital submission system.

3.2.National programme elements

The programme comprises the following seven national programme elements with a total weight of 90 ECTS credits.

1. Programming (30 ECTS)
2. Systems Development (15 ECTS)
3. Technology (05 ECTS)
4. Understanding Business (10 ECTS)
5. Programming 2 (10 ECTS)
6. Systems Development 2 (10 ECTS)
7. Technology 2 (10 ECTS)

3.2.1 National programme element—Programming

Contents

This programme element is dedicated to design and programming of IT systems and focuses on high-quality IT systems programming in a tier architecture with user interface, functionality and database. The solutions will be built using tools and technique employed by the profession with an emphasis of good programming design and development of systems of a high standard.

Learning objectives for Programming

Knowledge

The student has:

- development-based knowledge about the specification of abstract data types and program quality criteria
- understanding of abstraction mechanisms in modern programming languages

Skills

The student is able to:

- apply key methods to specify and create algorithms and assess the qualitative and quantitative properties of algorithms and data structures
- use key facilities in the programming language to realise algorithms, design patterns, abstract data types, data structures, design models and user interfaces
- use an integrated development tool widely used by the profession, including a version control system and key software components/libraries, to design and build practice-oriented applications based on a tier architecture
- apply key methods and technologies to realise models in a database system and build programs that use a database interface
- apply key methods and technologies to design and build programs in the form of interrelated processes/threads
- apply key technologies and tools to perform tests and quality controls and to produce documentation in accordance with current professional standards.

Competencies

The student is able to:

- manage development-oriented situations in programming
- function as a professional programmer in development, integration and maintenance projects
- acquire new knowledge, skills and competencies in a structured context of relevance to programming languages, development tools, programming techniques and program design.

ECTS credits

Programming totals 30 ECTS credits.

3.2.2 National programme element—Systems Development

Contents

This programme element is dedicated to standard techniques and methods used for problem analysis and systems design. The subject employs widely used diagramming techniques and tools

for modelling of the functionality and contents of database dependent systems. Focus is on developing user-friendly, flexible and easily understandable basic system with simple user interfaces. The subject also comprises techniques used for planning and implementation of quality assurance, such as review and testing.

Learning objectives for Systems Development

Knowledge

The student has:

- development-based knowledge about the importance of quality criteria for the systems development process and the final system design
- understanding of the importance of experimenting as part of or a supplement to the systems development method

Skills

The student is able to:

- apply key techniques and tools specific to this discipline for the modelling of IT systems at the level of analysis and design
- apply the techniques and tools of the profession to plan and perform tests and quality control
- apply the principles and techniques specific to this discipline in the design of user interfaces
- assess quality criteria as well as select and apply an appropriate software architecture
- assess practice-oriented issues through the involvement of users and apply appropriate patterns for modelling purposes
- communicate the process and product resulting from the systems development process to relevant stakeholders, including ensuring traceability.

Competencies

The student is able to:

- manage development focused situations using systems development methods and relevant techniques
- participate competently in technical and multidisciplinary systems development projects.

ECTS credits

Systems Development totals 15 ECTS credits.

3.2.3 National programme element—Technology

Contents

This programme element is dedicated to the technological aspects and problems of systems development and programming of IT systems. Focus is on database systems and operative

systems.

Learning objectives for Technology
Knowledge
The student has:

- development-based knowledge about up-to-date operative systems and database systems, including their structure and facilities
- understanding of the theory and practice of concurrency problems

Skills
The student is able to:

- apply key methods and tools to the synchronisation of processes and threads
- apply central database facilities and operating systems appropriately

Competencies
The student is able to:

- acquire new knowledge about and skills in relation to new operative systems and database systems in a structured context

ECTS credits
Technology totals 5 ECTS credits.

3.2.4 National programme element—Understanding Business

Contents
This programme element is dedicated to business understanding in general and value creation in a business. The subject addresses the relationship between commerce and information technology. Focus is on how a systems development organisation addresses the aspects of development, improvement and integration of information systems and information technology.

Learning objectives for Understanding Business
Knowledge
The student has:

- development-based knowledge about how information systems and information technology can improve business processes and develop the business
- development-based knowledge of IT implementation and change management
- understanding of strategic issues related to IT investments and IT security
- understanding of human interaction in the company

Skills
The student is able to:

- apply innovative methods with a focus on project work in practice-oriented development projects
- apply key methods for internal and external communication
- evaluate practice-oriented business processes based on key analytical methods

Competencies
The student is able to:
- handle the connection between design of business processes and the design of IT systems
- participate in project work and collaborate with stakeholders in IT projects using a professional approach
- acquire new knowledge, skills and competencies about new technology in a structured context from a professional perspective

ECTS credits
Understanding Business totals 10 ECTS credits.

3.2.5 National programme element—Programming 2

Contents
This programme element is dedicated to design, programming and realisation of distributed software systems and focuses on frontend and backend programming as well as the underlying communication.

Learning objectives for Programming 2

Knowledge
The student has:
- development-based knowledge of integration between heterogeneous components and platforms
- understanding of the theory and practice of distributed programming

Skills
The student is able to:
- apply key techniques to design and build programs with several concurrent users based on collaborative processes in a distributed architecture
- apply design patterns for distributed software architecture to build programs that use up-to-date network technologies
- apply key methods and tools to develop software components and web applications
- assess the qualitative consequences of a proposed solution

Competencies
The student is able to:

- undertake the work of a professional programmer in integration projects
- actively participate in major programming projects
- acquire new knowledge, skills and competencies in a structured context of relevance to programming languages, development tools, programming techniques and program design.

ECTS credits
Programming 2 totals 10 ECTS credits.

3.2.6 National programme element—Technology 2

Contents
This programme element is dedicated to technological problems and aspects within the context of networks, distributed systems and security and focuses on the use of the aspects mentioned within systems development, programming and operation.

Learning objectives for Technology 2

Knowledge
The student has:

- development-based knowledge about practical problems and key applied theory within the context of designing and realising distributed systems
- understanding of basic network concepts.

Skills
The student is able to:

- apply key virtualisation tools
- apply central and widely used application protocols
- assess practice-oriented issues related to key security concepts and threats
- assess relevant technological aspects when developing distributed systems

Competencies
The student is able to:

- select an infrastructure in connection with the development of distributed systems
- acquire new knowledge, skills and competencies within distributed systems in a structured context

ECTS credits
Technology 2 totals 10 ECTS credits.

3.2.7 National programme element—Systems Development 2

Contents

This programme element is dedicated to the quality of products and processes and looks into ways to ensure the proper quality using systems development methods and processes selected for and adapted to the situation. Methods for pre-feasibility studies and agile methods used in the development of various types of systems, including distributed systems, will form part of this subject.

Learning objectives for Systems Development 2

Knowledge

The student has:

- development-based knowledge about systems development methods and the importance of processes to the quality of products and processes

Skills

The student is able to:

- apply a chosen systems development method and use it in a systematic manner for a practice-oriented project
- apply key principles for the development of project plans and evaluate and adjust these in an appropriate manner
- assess practice-oriented problems and select a process model and a systems development method that fits the situation
- communicate the systems development process and the resulting product to partners and users.

Competencies

The student is able to:

- adapt systems development methods and processes according to the situation in a specific practice-oriented project
- participate competently in technical and multidisciplinary systems development projects using adapted methods
- acquire new knowledge about process models and systems development methods in a structured context

ECTS credits

Systems Development 2 totals 10 ECTS credits.

3.2.8 Number of exams for the national programme elements

Two exams will be held in the national programme elements, as well as one exam in the final exam project. For information about the number of internship exams, see section 3.5.

For a total list of all exams under the degree programme, please see section 5 of the curriculum, since the students can sit exams in the national programme elements specified in this curriculum together with the programme elements specified for the institutions-specific part of the curriculum.

3.3.Local programme elements

The local programme elements are worth 30 ECTS. The local programme elements are offered as electives at KEA. See section 3.1.

3.4.Electives

Prerequisites to taking the exam
The following requirements apply:
There is one mandatory activity for every 5 ECTS. Thus, a module of 10 ECTS contains two mandatory activities, while a module of 5 ECTS contains one mandatory activity. This is further described on KEA intranet in the semester / team room. The mandatory activity must be submitted through KEA's intranet.

Contents
Electives allow the student to qualify their study and professional skills through specialisation and perspective on subjects broadly related to the IT field.
Each year, KEA offers a number of specialisation courses. Information can be found on KEA's intranet.
According to agreement, a student may also arrange electives as a theoretical and / or practical course of study, which must be approved in advance by the programme.

ECTS credits
Electives have a total weight of 30 ECTS, of which the individual elective is weighted in multiples of 5 ECTS.

Learning objectives
The specific electives and their learning objectives are described in KEA's Subjects & Modules Catalogue: katalog.kea.dk

Sequencing
Electives take place in the fourth semester of the programme.

Exams
Unless otherwise explicitly stated in the KEA electives catalogue under the specific elective, the following applies:

Each elective includes an internal oral exam assessed in accordance with the 7-point grading scale.

The student is given one grade as an overall assessment of the oral performance and the subsequent examination.

The exam starts with a 10-minute presentation. The student is then examined for 20 minutes incl. grading.

Exam language
English

Materials and aids
None.

3.5.Internship

Contents.
The internship is organised so as to contribute to the student's developing practical competencies in combination with the programme's other elements. The objective of the internship is to enable the student to apply the methods, theories and tools taught by the programme and thereby address specific practical assignments within the scope of information technology.

Number of ECTS credits
15 ECTS

Learning objectives
Knowledge
The student has:

- knowledge and understanding of the day-to-day operation of the internship company, especially in relation to the tasks carried out during the internship.

Skills
The student is able to:

- apply versatile technical and analytical approaches associated with employment within this industry
- assess practice-oriented issues and suggest solutions
- communicate practice-oriented issues and well-argued solutions.

Competencies
The student is able to:

- handle development-oriented practical and professional situations in relation to the profession
- manage the structuring and planning of daily work tasks in the profession
- participate in professional and interdisciplinary cooperation with a professional approach
- acquire new knowledge, skills and competencies in relation to the profession

The internship completes with an exam.
The learning outcomes for this exam are identical to the learning outcomes for the internship.

3.6.Rules for the completion of the internship

Requirements for and expectations of the internship

During the internship, the student will be working with relevant issues within the National Programme Elements and obtain knowledge of relevant business functions. The student will be working with one or more companies. The internship can be organised flexibly and may form the basis of the student's final exam project.

Based on the learning objectives for the internship, cf. the national part of the curriculum, the student and the supervisor/contact person will jointly determine concrete outcomes for the internship which will then be the guidelines for the organisation of the student's work during the internship period.

The internship period is considered a full-time job with the demands on working time, efforts, commitment and flexibility which a graduate in computer science is likely to encounter in their first job.

3.7.Teaching and learning methods

Teaching in Computer science is a dynamic, interactive process that focuses on active student participation. Teaching is based on relevant business practices and relates practice to theory. Issues from the various types of business in the IT industry will be drawn upon. Students take responsibility for their own learning, and together with the teachers, they contribute constructively to the learning process.

Various teaching methods are employed in the Computer science programme to ensure optimum professional learning and personal development. The emphasis is on dialogues, discussions and project work.

Teaching is organised as a mix of classroom teaching, guest lectures, company visits, project work in groups and individual work – most often with interdisciplinary issues and always from an application-oriented starting point. The different types of learning, together with the academic content, will also help develop the student's ability to work independently and together with others.

The programme always seeks to set clear objectives for the learning activities.

Teaching can be organised so as to include teaching material and teaching in a foreign language.

3.8.Differentiated teaching

Teaching is organised as a mix of classroom teaching, guest lectures, company visits, project work in groups and individual work – most often with interdisciplinary issues and always from an application-oriented starting point. The different types of learning, together with the academic content, will also help develop the student's ability to work independently and together with others.

The programme always seeks to set clear objectives for the learning activities.

3.9.Reading texts in foreign languages

The teaching materials are primarily in English. Teaching is conducted in Danish in Danish classes and in English in international classes—at a level equivalent to level B English. Electives may be offered in both Danish and English.

No further knowledge of foreign languages is required.

4.Internationalisation

4.1.Education abroad

Upon approval by the programme of an application for a pre-approved credit transfer, each individual programme element may be completed abroad.

In case of pre-approval of a period of study abroad, the student is obliged, after completing the period of study, to document the programme elements completed during the approved period of study. Upon obtaining the pre-approval, the student must consent to the institution requesting the necessary information after the student has completed the period of study.
If a credit transfer is granted, programme elements are deemed to have been completed if they have been passed in accordance with the rules applicable to the programme.

4.2.Agreements with foreign educational institutions on parallel courses

No Double Degree agreements exist

5.Exams in the programme

5.1.Programme exams

All programme elements (i.e. national programme elements) complete with an exam. For an overview of the exams, see the table in section 3.1.

The student must make themselves familiar with all the exam formalities in the exam folder on KEA's intranet. It is the responsibility of the student to ensure that registration for an exam is correct and to be informed of the deadlines and the exam dates and other relevant conditions of a given exam. Electronic submission only.

If a student has been prevented from sitting an exam and subsequent re-exams, for reasons which have been documented, they will not be able to take the exam until the next ordinary exam period.

Commencement of a semester is automatic registration for its associated exams. It is not possible to unregister programme exams, cf. the Ministerial Order on Examinations on Professionally Oriented Higher Education Programmes, section 5(4). For more information on exams, see section 5.1.3.

5.1.1 Exam forms

The exams are usually individual overall assessments of the degree to which the student has achieved the learning objectives.

Sequencing	Exam	ECTS	Exam form	Assessment
First semester	First part-exam of the 1st-year exam: Programming	15	20-minute oral exam incl. grading based on questions in the learning objectives..	7-point grading scale Weighted 25% of the total grade
Second semester	Second part-exam of the 1st-year exam:	45	Oral presentation by the student based on the exam report and the product prepared in groups. The project is presented by the project group, 10 minutes per student, however max. 30 minutes— followed by an examination of the individual group members, 30 minutes each, incl. grading.	7-point grading scale Weighted 75% of the total grade
Third semester	First part-exam of the 3rd-semester exam: Systems Development 2	10	Oral exam with a 10-minute presentation followed by a 20-minute examination incl. grading. The exam is an individual exam.	7-point grading scale A separate grade is given for each part-exam in the third semester.
Third semester	Second part-exam of the 3rd-semester exam: Technology 2	10	20-minute oral exam incl. grading based on questions in the learning objectives..	7-point grading scale A separate grade is given for each part-exam in the third semester.
Third semester	Third part-exam of the 3rd-semester exam: Programming 2	10	Based on an assignment giving 24 hours in advance, a solution must be submitted. Oral exam with a 5-minute demonstration of the solution followed by a 25-minute examination incl. grading. Individual exam paper and examination.	7-point grading scale A separate grade is given for each part-exam in the third semester.

Fourth semester	Electives	In total 30 (multiple of 5)	25-minute oral exam incl. grading, based on questions in the learning objectives unless otherwise explicitly stated under the specific elective subject in the Subjects & Modules Catalogue. Katalog.KEA.dk	7-point grading scale
Fifth semester	Internship exam	15	Written. Report assessment	7-point grading scale
Fifth semester	Final exam project	15	Oral presentation based on a report and a product prepared in groups. The project is presented by the project group, 10 minutes per student, however max. 30 minutes—followed by an examination of the individual group members, 20 minutes each, incl. grading.	7-point grading scale

5.1.2 Mandatory activities—attendance and submission

In addition to the submission of a report or product, certain mandatory activities may have to be completed before the student can take part in an exam. In general, there is one mandatory activity for every 5 ECTS credits, except for the internship and the final exam project. Submission of an assignment, a presentation, active participation in the teaching, etc. are all examples of mandatory activities.

First semester		
Programme elements	ECTS	Number of mandatory activities
Understanding business	5	1
Design	10	2
Programming	15	3 (To be submitted before the first part-exam of the 1st-year exam)
Second semester		
Understanding business	5	1

Systems Development	10	2
Programming	10	2
Technology	5	1
Third semester		
Systems Development 2	10	2
Programming 2	10	2
Technology 2	10	2
Fourth semester		
Electives	30	one mandatory activity for every 5 ECTS

Failure to perform a mandatory activity means that the student cannot take part in the exam and that one exam attempt will have been used.

The mandatory activities for a given programme element will appear from the description of the programme element at the beginning of each semester.

Mandatory semester activities must be submitted through KEA's intranet. Reports and products for a given exam must be submitted via KEA's digital submission system.

Sequencing	Exam	ECTS	Number of mandatory activities: see 5.1.2	Report	Group size	Report - no. of pages	Product
First semester	First part-exam of the 1st-year exam: Programming	15		No	Individual	None	No
Second semester	Second part-exam of the 1st-year exam:	45		Yes	2-4 stud.	No. of stud. / No. of pages 1 Max. 40 2 Max. 50 3 Max. 55 4 Max. 60	Yes

Third semester	Systems Development 2	10		No	-	None	Yes
Third semester	Programming 2	10		No	Individual	None	Yes
Third semester	Technology 2	10		No	Individual	None	No
Fourth semester	Electives exams	In total 30 (multiple of 5)		No.	-	None	No
Fifth semester	Internship exam	15		Yes	-	Max 5 pages	No
Fifth semester	Final exam project	15		Yes	1-4 stud.	No. of stud. / No. of pages 1 / Max. 40 2 / Max. 50 3 / Max. 55 4 / Max. 60	Yes

5.1.3 Exam organisation

For information on the use of materials and aids and duration of an exam, see the following table.

Sequencing	Exam	ECTS	Materials and aids	Duration of the exam
First semester	First part-exam of the 1st-year exam: Programming	15	None	20 min. per student
Second semester	Second part-exam of the 1st-year exam:	45	Yes	30 min. per student

Third semester	First part-exam of the 3rd-semester exam: Systems Development 2	10	Yes	30 min
Third semester	Second part-exam of the 3rd-semester exam: Technology 2	10	None	20-min examination
Third semester	Third part-exam of the 3rd-semester exam: Programming 2	10	Yes	24 hrs + 30-minute examination
Fourth semester	The electives exam	30 (multiple of 5)	Yes	5 ECTS = 15 minutes 10 ECTS = 25 minutes 15 ECTS = 35 minutes 20 ECTS = 40 minutes 25 ECTS = 40 minutes 30 ECTS = 40 minutes
Fifth semester	Internship exam	15	None	-
Fifth semester	Final exam project	15	None	30 min

For exams which include a written group assignment, the individual student's contribution must be clearly stated.

5.1.4. Exams with external co-examiner

See table in 3.1

5.2.Programme exams and their placement

See table in 3.1

5.3.First-year exam

Programming, Systems Development, Technology and Understanding Business

Prerequisites to taking the exam

The following requirements apply for the exam:

12 mandatory activities are associated with the exam. These have been further described on KEA intranet in the semester / team room. The mandatory activities must be submitted through KEA's intranet.

Non-compliance with one single or several of the formal requirements, or incorrect submission of the first-year project, which constitutes the written part of the exam, means that the student cannot take the exam, and they will have used one exam attempt.

Exam organisation

The exam consists of two parts:

First semester: First part-exam. External individual oral exam within the program element Programming and assessed according to the 7-point grading scale.

Second semester: Second part-exam. External individual oral exam based on a written group project and assessed according to the 7-point grading scale. Students are examined in the four National Programme Elements. A sufficient level must be achieved within each of the four National Programme Elements.

The group must consist of minimum two and maximum four students.

Students are given one aggregate grade as an overall assessment of the written and the oral performance.
The project is presented by the project group, 10 minutes per student, however max. 30 minutes—followed by an individual examination of the group members, 30 minutes each, incl. grading

Formal requirements for the written project
The student must submit a project report, and a product.
The project report constitutes the written part of this exam. As a minimum the report must comprise:

- Cover page with title, student name and date of birth, name of class and date
- Table of contents
- Problem formulation/statement
- Main chapters
- Conclusion
- Bibliography (including all sources referenced in the project)
- Appendices (only appendices essential to the report)
- Attach source code, and specify path to version control server, if any, where source code and executable code for the product can be retrieved
- All pages must be paginated

The written project must consist of a maximum of 40 standard pages for one student. For each additional student, the number of pages increases according to the following table:

Number of students	Max. no. of pages

1	40
2	50
3	55
4	60

A standard page contains 2,400 characters including spaces and footnotes. Cover page, table of contents, bibliography and appendices are not included. Appendices are not subject to assessment.

Each individual figure or diagram counts 800 characters.

Assessment criteria
The assessment criteria for the exam are the same as the learning objectives for Programming, Systems Development, Technology and the Understanding Business
The learning outcomes appear from this curriculum.

Sequencing
The part-exams take place at the end of the first semester (the first part-exam) and the second semester (the second part-exam). Detailed information on time and place and submission of the written group project can be found on KEA's intranet.

Exam language
English

Students must pass the exam before the end of the first year of study in order to continue on the programme.
The programme may grant an exemption from the time frames for when an exam must be passed on the grounds of illness, leave or exceptional circumstances.

The scope of the exam makes up a total of 60 ECTS, divided between 15 ECTS for the first part-exam in the semester and 45 ECTS for the second part-exam in the second semester. The overall grade is a calculation of a weighted average of the two part-exams. The first part-exam is weighted 25% and the second part-exam is weighted 75%. Grades will be rounded off. Both part-exams must be passed with a grade of 02 as a minimum.

Materials and aids
None.

5.4.Requirements for written assignments and projects

Project reports which constitute the written part of an exam must, as a minimum, contain

- Cover page with title, student name and date of birth, name of class and date
- Table of contents
- Problem formulation/statement

- Main chapters
- Conclusion
- Bibliography (including all sources referenced in the project)
- Appendices (only appendices essential to the report)
- All pages must be paginated
- When a product is also to be handed in (in the form of a code): Attach source code, and specify path to version control server, if any, where source code and executable code for the product can be retrieved.

A standard page contains 2,400 characters including spaces and footnotes. Cover page, table of contents, bibliography and appendices are not included in the number of pages submitted. Appendices are not subject to assessment.
Each individual figure or diagram counts 800 characters.

For the maximum number of pages for each project, see 5.1.2.

Formal requirements for the internship report

One internship report must be submitted.
The internship report must, as a minimum, contain

- Cover page with name, date of birth, internship company, institution, internship period and class name and date
- Table of contents
- Problem formulation/statement
- Main chapters
- Conclusion
- Bibliography (including all sources referenced in the project)
- Appendices (only appendices essential to the report)
- All pages must be paginated
- Company reference and logbook

The internship report can make up no more than five standard pages.

A standard page contains 2,400 characters including spaces and footnotes. Cover page, table of contents, bibliography, log and appendices are not included in the number of pages submitted. Appendices are not subject to assessment.
Each individual figure or diagram counts 800 characters.

5.5.Requirements for the final exam project

The learning objectives for the final exam project are identical to the learning objectives for the degree programme, please see 1.3.

The final exam project must document the student's understanding of practice and key applied theories and methods in relation to a practice-oriented issue based on a specific assignment

within the area of the programme. The problem statement must be central to the programme and the profession and be prepared by the student, possibly in cooperation with a public or private company. The problem is subject to the institution's approval.

The student must submit a project report and, possibly, a product.

The project report constitutes the written part of the exam. As a minimum the report must comprise:

- Cover page and title
- Table of contents
- Introduction and problem statement
- Main chapters
- Conclusion
- Bibliography (including all sources referenced in the project)
- Appendices (only appendices essential to the report)

Project reports written by a single student may total 40 standard pages as a maximum; reports written by several students may total an additional 20 standard pages per student.
Cover page, table of contents, references and appendices are not included in the required number of pages. Appendices are not subject to assessment.
A standard page contains 2,400 characters including spaces and footnotes. Cover page, table of contents, bibliography and appendices are not included. Appendices are not subject to assessment.

Exam in the final exam project
The final exam project completes the last semester of the degree programme after the student has passed all previous exams.

ECTS credits
The final exam project is worth 15 ECTS credits.

Exam form
The exam consists of an oral and a written exam with an external co-examiner. Students are given an individual overall grade according to the 7-point grading scale for the written project and the oral performance.

5.5.1 The importance of spelling and writing skills

Students' spelling and writing skills are assessed in the final exam project. The assessment is an overall assessment of the academic content and students' spelling and writing skills.

Students who can demonstrate a relevant specific impairment may apply for exemption from the requirement that spelling and writing should be included in the assessment. The application must be sent to the Head of the Programme at the relevant school no later than four weeks before the exam takes place.

5.6.Use of materials and aids

Any restriction on the use of materials and aids will appear from the description of the individual exam. See 5.1.3.

5.7.Special exam conditions

Examinees with physical or mental impairments and examinees with corresponding difficulties may be granted specific exam conditions where this is necessary to give them equal status to other examinees in the exam situation.

Special exam conditions must, however, not change the standard level of the exam.

Examinees with a non-Danish background are allowed to bring a dictionary to exams where materials and aids are not allowed.

The granting of special exam conditions, including extra time, will be decided by the Head of the Programme on the basis of a specific assessment. An application for the granting of special exam conditions must be in writing and submitted to the Head of Programme no later than three months before the exam is to be held. Documentation of impairment must be attached to the application.

5.8.Make-up exams

Re-exam: Students who fail an exam have another two attempts.

The re-exam will be held immediately after the first exam attempt.

A student is entitled to sit a re-exam based on the same project, a reworked project or a completely new project. KEA offers advice on the pros and cons of the three methods in relation to the individual student's assignment. The re-exam has the same purpose as the ordinary exam.

A re-exam due to documented illness or other documented reason(s), will be held as soon as possible.

5.9.Examination language

The exams must be conducted in Danish or English depending on the language of the teaching. Students with a mother tongue other than Danish / English may apply for an exemption from the requirement that spelling and writing skills should be included in the assessment of the final exam project. The application must be sent to the programme no later than four weeks before the exam takes place.

5.10.Commencement of studies exam

The commencement of studies exam will be held within the first two months of the first semester.

The student must pass the commencement of studies exam in order to continue their studies. The exam aims to clarify whether the student has actually started on the programme as well as active enrolment.

The exam is assessed as pass/fail. If a student does not pass the exam, they have the opportunity to sit a re-exam. If the re-exam is not passed, the student cannot continue their studies and will be disenrolled automatically.

The usual complaint rules do not apply to the commencement of studies exam.

5.11.Use of own and others' written work (plagiarism)

Projects and other material in connection with exams must be drawn up by the students themselves.

If students unlawfully use other people's work as their own (plagiarism) or use their own previously assessed work without references, they will be expelled from the exam.

Students may also be expelled after the exam.

Expulsion from an exam due to cheating means that any grade already awarded will be withdrawn, and the student will have used one exam attempt.

For information about plagiarism, see www.stopplagiat.nu

5.12.Exam cheating and disruptive behaviour during exams

Cheating at exams will be handled in accordance with the rules set out in the Ministerial Order on Examinations on Professionally Oriented Higher Education Programmes (the Examination Order).

Students who cheat at an exam will be expelled from the exam.

If cheating occurs under aggravating circumstances, the student can be expelled from the programme for a shorter or longer period. With expulsion for cheating under aggravated circumstances, a written warning will be given stating that repetition could lead to permanent expulsion from the programme.

Cheating includes:

– Obtaining unlawful help during the exam

– Providing unlawful help to other students during the exam

Using other people's work as one's own (plagiarism – see *www.stopplagiat.nu*), see also section 5.15

– Using own previously assessed work without references, see also section 5.15

– Using materials and aids not permitted for the exam in question

Expulsion from an exam due to cheating means that the awarded grade will be withdrawn, and the student will have used one exam attempt.

If students exhibit **disruptive behaviour** during an exam, the educational institution may expel them from the exam. In less serious cases, the institution will give the student a warning.

6.Other rules governing the programme

6.1.Rules on compulsory attendance

The teaching methods of the study require that student should perform all the mandatory activities, including submission/presentation of assignments/projects.
The mandatory activity may also be a precondition for taking the exams in the programme.
In addition, attendance may be mandatory for some of the programme elements.
Mandatory activities and mandatory attendance as prerequisites for an exam will appear from the description of the individual exam.

To retake an entire semester, a student must be granted an exemption. Exemption to re-take a semester is based on an individual assessment by the student counsellor and the Head of Programme and only when there are compelling personal reasons.

6.2.Credit transfer

On a case-by-case basis or by recourse to the rules of the curriculum, KEA approves credit transfers based on completed programme elements and job experience comparable to subjects, programme elements and internships. The decision is based on an academic evaluation.

6.3.Credit transfer of subjects covered by the common part of the curriculum

There are no such agreements.

6.4.Credit transfer of subjects covered by the institution-specific part of the curriculum

There are no such agreements.

6.5.Criteria for the assessment of active enrolment

The student must take part in student activities, compulsory projects and tasks (mandatory activities), tests and exams in accordance with the conditions described in this curriculum and in applicable laws and regulations. KEA evaluates active enrolment on an ongoing basis.

Active enrolment requires that student participates in:

- Project start-up meetings
- Mandatory meetings with supervisor/teacher
- Project work, including submissions through KEA's intranet or the electronic submission system.
- Project presentations and assessments
- Tests and exams as described in this curriculum
- A number of assignments for each semester. These assignments—mandatory activities—must be approved before the student can sign up for the exams in the semester in question.

Students who cannot participate in study activities due to documented illness or other acceptable reasons, must immediately contact the Administration for Software development. The Administration will inform the student about the necessary procedures, including the provision of a medical certificate. The student must pay all the costs.

6.6.Disenrolment due to insufficient study activity

Enrolment on the programme can be terminated for students who have not passed at least one exam within a consecutive period of at least one year.

6.7.Exemption rules

KEA may, due to exceptional circumstances, grant exemptions from the rules in this curriculum laid down solely by KEA or together with the educational institution offering the programme.

6.8.Complaints

Complaints regarding exams will be handled in accordance with the rules set out in Chapter 10 of the Ministerial Order no. 1519 of 16 December 2013 on Examinations on Professionally Oriented Higher Education Programmes (the Examination Order).

When should a complaint be submitted? Complaints relating to examinations and grading must be submitted within two weeks of the assessment (grade) being announced.

How should a complaint be submitted? Complaints must be submitted individually and in writing to KEA at kvalitet@kea.dk stating the reasons for the complaint. Complaints submitted jointly by several students may be rejected.

What may the complaint concern? A complaint may concern the basis for examination, the examination process or the assessment (grade).

What may the complaint result in? If your complaint is successful, you will be offered a new assessment (for written exams) or a re-exam (for oral exam). Your grade *cannot* be changed administratively. Your grade will only be changed if the new examiners award you a different grade according to their professional assessment. The new grade may be higher or lower than the original grade.

Who handles the complaint? Complaints are normally handled by KEA Quality Assessment. This does not, however, apply to complaints concerning the basis for examination if the exam is organised by the Danish Agency for Higher Education. In such cases, the complaint is forwarded to the Danish Agency for Higher Education together with KEA's opinion.