Curriculum
Computer Science (AP)

Academy Profession Degree Programme in Computer Science
Erhvervsakademiuddannelse inden for informationsteknologi (datamatiker AK)

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Head of Study Programmes Lars Bogetoft

Director of Education Gregers Christensen

Ole Gram-Olesen

President, Cphbusiness, Ole Gram-Olesen

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COPENHAGEN BUSINESS ACADEMY

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1. FRAMEWORK

This curriculum, covering the study programme Academy Profession Degree Programme in Computer Science, hereinafter referred to as the study programme or the programme, is composed in compliance with the ministerial order no. 1521 of 16 December 2013 on academy profession programmes and bachelor programmes by the Danish institutions of higher education approved to offer the particular programme.

Joint parts and institution specific parts of the curriculum
Parts of the curriculum have been stipulated conjointly with the institutions in the respective national education network for business academies, whilst others have been determined by Cphbusiness alone. The joint parts are incorporated in this document and constitute the following subsections: 3.2, 3.3, 3.5, 5.2, 5.4 and 6.1. The remaining parts are institution specific.

The joint parts have been co-created by the institutions mentioned below, which have committed themselves to ensuring national competence and uniform practices regarding exemptions.

The joint parts of the curriculum have been determined by:

Business Academy Aarhus
www.baaa.dk

EA Business Academy SouthWest
www.easv.dk/index.php/en/

Business Academy of Higher Education MidWest
www.eamv.dk

Lillebaelt Academy of Professional Higher Education
www.eal.dk

Copenhagen Business Academy
www.cphbusiness.dk/english

University College of Northern Denmark
www.ucnorth.dk

Copenhagen School of Design and Technology
www.kea.dk/en

Zealand Institute of Business and Technology
www.zibat.dk

Danish Academy of Business and Technology (Dania Academy of Higher Education)
www.eadania.dk/en

The joint parts of the curriculum have been agreed upon by the national education network for business academies during the summer of 2014.

The curriculum as a whole has been approved by Cphbusiness in compliance with the institution's internal approvals procedure on 25 August 2014.

1.1. Purpose and Objectives of the Study Programme

The purpose of the Academy Profession Degree Programme in Computer Science is to qualify the graduate to independently analyse, plan and carry out solutions for developing, refining and the integration of IT systems in private and public companies in national as well as an international settings.

Learning objectives and outcomes
The learning outcome includes the knowledge, skills and competencies a graduate in Computer Science will achieve from the programme cf. the ministerial order no. 641 of 12 June 2014 on the Academy Profession programme in Computer Science, appendix 1.

Following is an English translation of the Danish ministerial order no. 641 of 12 June 2014 on the Academy Profession programme in Computer Science, appendix 1, published in Lovtidende, which is the Danish national gazette. In the event of a discrepancy between the translated version and the Danish version, the latter is thus valid.

Knowledge
The graduate will possess knowledge of:
- standard applied practice, theory and method in relation to software development
- fundamental company operations in relation to software development
- technological concepts and the techonological platform of computer science in relation to programming, error tracing and commissioning

Skills
The graduate will be able to:
- methodically identify ewquirements to IT systems, comprising assessment of wheter the requirements are feasible within the set framework
- apply state-of-the-art programming techniques and tools for software construction, including ensuringthe quality of the developed product
- document the work performed in a manner which makes the documentation useful to the specified target group
- apply relevant knowledge in connection with system development, programming and commissioning
- 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
- communicate practice-related problems and solution options to cooperation partners and users

Competencies
The graduate will be able to:
- participate in the development of the practical aspects of software development
- participate in project work in a competent manner
- participate in professional and interdisciplinary cooperation in connection with software development applying a professional approach
- participate in a process for development of a system applying state-of-the-art methods, techniques and tools
- in a structured context aquire new knowledge, skills and competences in relation to the IT industry, including domain knowledge and technological knowledge and application of new methods, techniques and tools

1.2. Title, Duration and Certificate

Title
Upon completion of the programme, graduates are entitled to use the *AP Graduate in Computer Science* (in Danish: *datamatiker AK*).

In agreement with the Danish Qualification Framework for Lifelong Learning, the programme is graded at level 5.

Duration and maximum length of study
With 60 ECTS credits (European Credit Transfer System) corresponding to one full-time year of study, cf. section 9 in the ministerial order no. 1521 of 16 December 2013 on academy profession programmes and bachelor programmes (*BEK nr. 1521 af 16/12/2013: Bekendtgørelse om erhvervsakademiuddannelser og professionsbacheloruddannelser*), the programme amounts to 120 credits in total. According to section 5, subsection 2, in the Order on Academy Profession Programmes and Bachelor Programmes, the study programme shall be completed no later than the nominal length of study plus two years, meaning 4½ years. Under exceptional circumstances, Cphbusiness is entitled to grant exemptions from this rule.

Certificate
Upon completion of the Computer Science programme, a certificate is issued to the student by Cphbusieness.

1.3. Commencement and Transitional Arrangements

This curriculum is effective as of 1 August 2014, and the terms and conditions stated herein apply to students enrolled at and starting the programme in the autumn of 2014. Students covered by curricula prior to the present may however request that they be covered by these until their completion of the programme, provided that they meet the previously listed requirements regarding the maximum length of study, cf.

subsection 1.2. Under special circumstances, including circumstances relevant to the individual student, Cphbusiness may grant exemptions from the rule stipulated in this subsection, cf. subsection 1.3., entailing that an otherwise repealed curriculum still applies. As regards the release of a new curriculum, or in the event of substantial alterations to the present, transitional arrangements will be laid down in the new curriculum.

1.4. Legal Framework

The legal framework that applies to this study programme is constituted by the latest versions of the following acts and ministerial orders:

Following are English translations of Danish national acts and orders published in Lovtidende, which is the Danish national gazette. In the event of a discrepancy between the translated version and the Danish version, the latter is valid.

- Act no. 214 of 27 February 2013 on academies of professional higher education *(the Academy Profession Act)*
- Act no. 467 of 8 May 2013 on academy profession programmes and professional bachelor programmes *(LEP-loven)*
- Ministerial order no. 1521 of 16 December 2013 on academy profession programmes and bachelor programmes *(the Order on Academy Profession Programmes and Bachelor Programmes)*
- Ministerial order no. 1519 of 16 December 2013 on examinations *(the Examination Order)*
- Ministerial order no. 223 of 11 March 2014 on admission and enrolment on academy profession programmes and bachelor programmes *(the Admission and Enrolment Order)*
- Ministerial order no. 262 of 20 March 2007 on the grading scale and other forms of assessment *(the Grading Scale Order)*
- Ministerial order no. 641 of 12/06/2014 on the Academy Profession Degree Programme in Computer Science (*Uddannelsesbekendtgørelsen*)

The respective acts and orders can be obtained through *Retsinformation* at www.retsinfo.dk (in Danish).

2. ADMISSION TO THE PROGRAMME

2.1. Entry Requirements

Admission to the programme requires a qualifying examination as well as fulfilment of the programme specific entry requirements. The entry requirements are stipulated in the order on admission and enrolment on academy profession programmes and bachelor programmes in force, and should doubts arise from the formulations used in

this subsection, the formulations in the order apply. For the programme specific entry requirements, please visit Cphbusiness' website.

2.2. Eligibility for Admission

In order to become eligible for admission to the programme, applicants must meet the entry requirements stated in subsection 2.1. If these are fulfilled, the applicant is qualified for, however not guaranteed, admission to the programme. Provided that the number of eligible applicants, cf. subsection 2.1., exceeds the number of spaces available, Cphbusiness may specify additional selection criteria on the grounds of which applicants in quota 2 are accepted as long as spaces are available.

The additional selection criteria will be published at Cphbusiness' website, taking due account of the time limits provided by the Ministry of Higher Education and Science.

3. PROGRAMME CONTENTS

3.1. Programme Structure

As a prerequisite for completing the study programme, students must attend and pass educational elements equivalent to a total workload of 150 ECTS credits. A full-time semester encompasses educational elements, corresponding to 30 ECTS credits.

The programme comprises compulsory educational elements equivalent to 90 ECTS credits, electives equivalent to 30 credits, an internship equivalent to 15 credits and a final examination project equivalent to 15 ECTS credits.

Educational Elements		1st year	2nd year	3rd year
Key subject areas	Programming (40 ECTS)	30 ECTS	10 ECTS	
	Systems Development (25 ECTS)	15 ECTS	10 ECTS	
	Technology (15 ECTS)	5 ECTS	10 ECTS	
	Business Understanding (10 ECTS)	10 ECTS		
Electives			30 ECTS	
Internship				15 ECTS
The final examination project				15 ECTS
In total	(90 ECTS)	**60 ECTS**	**60 ECTS**	**30 ECTS**

The sum of all educational elements and other study activities may not exceed the prescribed 150 ECTS credits. All educational elements, including the final examination project, are assessed and evaluated according to the subsection on examinations in this curriculum, cf. chapter 5, and where the outcome of the assessment is either 'passed' or a a minimum the grade 02, the educational element concerned is perceived as passed. For more information on examinations, please read chapter 5 in this curriculum and the local documents relevant to the study programme.

3.2. Key Subject Areas

The programme covers a number of overarching subject areas to which the educational elements are related. The subject areas comprise educational elements corresponding to 90 ECTS credits. The contents of the subject areas as well as the distribution of ECTS credits have been determined collaboratively by the institutions of higher education approved to offer the particular programme. The subject areas include the following:

Programming
Work load: 40 ECTS
Contents: The objective of this key subject area is to give the student competences to be able to effectively and professionally realise systems of relevant quality, by using modern and state-of-the-art programming technology and tools for software construction.
Learning objectives: *Knowledge* The student has knowledge about: • specifications of abstract data types • criteria for program quality • abstraction mechanisms in modern programming languages • integration of heterogenous components and platforms *Skills* The student can: • specify and construct algorithms • use programming language to realise algorithms, design patterns, abstract data types, data struc-tures, design models and user interfaces • evaluate qualitative and quantitative properties of algorithms and data structures • use a modern integrated development tool, including version control systems • realise models in a database system and construct programs which use a database interface • design and construct programs in the form of interrelated processes/threads

- design applications based on a layered software architecture
- use software components/libraries
- prepare documentation in relation to valid de-facto standards in the field
- use up-to-date techniques and tools for testing and quality assurance
- use techniques for the construction of programs with simultaneous users
- design and construct programs based on interrelated processes in a distributed architecture
- construct programs which use modern network technologies
- use design patterns for distributed software architecture
- develop software components
- develop web applications

Competencies
The student can:
- participate as a professional programmer in development, integration and maintenance projects
- keep up to date with current programming languages, development tools, programming technology and program design

Systems Development

Work load: 25 ECTS

Contents: The objective of this key subject area is to give the student competences to be able to participate effectively and professionally in the development of IT systems with relevant quality. The key subject area is also intended to develop the student's competences in the development from idea to functioning system, enhancement and integration of IT systems based on a systematic foundation, using up-to-date and suitable systems development methods and techniques.

Learning objectives:

Knowledge
The student has knowledge about:
- the importance of experimenting as part of or as supplement to systems development methods
- the importance of quality criteria for the systems development process and the final systems design

Skills
The student can:
- model and design It systems
- use an appropriate software architecture
- document and communicate product and process – including traceability
- ensure quality of product and process
- use appropriate design patterns
- involve users
- design relevant user interfaces and select process models and systems

development methods
- work systematically with a project using a chosen systems development method
- plan, evaluate and adjust projects
- select and use appropriate design patterns and components
- design systems which are integrated with other systems

Competencies
The student can:
- participate as a competent member of a development project
- adapt a systems development method to a project, taking into account the actual situation
- acquire knowledge about new process models and systems development methods
- reflect on and adapt processes and methods in practice

Technology

Work load: 15 ECTS

Contents: The objective of this key subject area is to give the student competences to be able to contribute to the choice and use of technology in relation to systems development and programming of IT systems, as well as to give the student a basic knowledge about technological aspects.

Learning objectives:

Knowledge
The student has knowledge about:
- the facilities and construction of modern operative systems
- the facilities and functions of modern database systems
- problems related to simultaneous users
- principles of designing and realising distributed systems
- fundamental network terminology

Skills
The student can:
- use mechanisms to synchronise threads
- use central security concepts and threats
- use virtualisation
- use services and programming interfaces for communication
- use standard application protocols

Competencies
The student can:
- acquire knowledge about new operative and database systems
- reflect on the choice of infrastructure in relation to the development of distributed systems

Business Understanding
Work load: 10 ECTS
Contents: The objective of this key subject area is to give the student competences in incorporating relevant business-related aspects and business understanding in connection with systems development. The key subject area also intends to develop the student's competences in working in a systems development organisation and in participating in the development, enhancement and integration of IT systems in different types of organisations.
Learning objectives: *Knowledge* The student has knowledge about: • how IT can improve business processes and develop the business • standard systems in a company, including organisational concepts • reasons for investing in IT • IT security *Skills* The student can: • analyse and model business processes • participate in project work • use innovative methods with focus on project work in practical development projects • communicate and explain to both internal and external partners • take part in the implementation of IT and change management *Competencies* The student can: • take part in and understand the relationship between the design of business processes and design of IT systems • collaborate with representatives from the user organisation and the development organisation based on an understanding of business processes and concepts • acquire knowledge about new technology in a business-oriented perspective

3.3. Compulsory Educational Elements

The key subject areas cover a range of education elements that correspond to 90 ECTS credits. This part of the curriculum has been determined collaboratively by the institutions of higher education approved to offer the particular programme, and these educational elements are mandatory. The compulsory educational elements are all concluded with an examination and include the following:

Diagrammatic outline of educational elements on semesters

Educational elements distributed on semesters	1st and 2nd semester	3rd semester	4th semester	5th semester	ECTS
Compulsory Educational Elements					**90**
Key Subject Areas	Programming, Systems Development, Technology and Business Understanding	Systems Development			
		Programming and Technology			
Programming	30	10			40
Technology	5	10			15
Business Understanding	10				10
Systems Development	15	10			25
Elective educational elements					**30**
Electives			30		30
Internship and final examination project					**30**
Internship and project				15	15
Final examination project				15	15
Total	**60**	**30**	**30**	**30**	**150**

In the following, the compulsory educational elements will be elaborated on.

Programming, Systems Development, Technology and Business Understanding
Key Subject Area: Programming, Systems Development, Technology and Business Understanding
Timing: 1st and 2nd semester
Work load: 60 ECTS, comprised of: • 30 ECTS from the key subject area Programming   • 15 ECTS from the key subject area Systems Development   • 5 ECTS from the key subject area Technology   • 10 ECTS from the key subject area Business Understanding
Contents: This first compulsory educational element in the education is intended to qualify the student to: • be able to effectively and professionally realise IT systems with interfaces to user and databases, and to master fundamental elements within the datamatic field.   • develop and further develop small-scale database-based systems from idea to operating system, on a systematic foundation and using a specific and up-to-date method and related systems development tools.   • contribute to the selection and use of technology in connection with systems

development and programming of IT systems, and to give the student a basic knowledge of technological aspects
- include relevant organisational aspects and business understanding in connection with sys-tems development, and to work in a systems development organisation and participate in the development, enhancement and integration of IT systems in different types of organisations.

Learning Objectives:

Knowledge

Programming

The student has knowledge about:
- specifications of abstract data types
- criteria for program quality
- abstraction mechanisms in modern programming languages

Systems Development

The student has knowledge about:
- the importance of experimenting as part of or as supplement to systems development methods
- the importance of quality criteria for the systems development process and the final systems design

Technology

The student has knowledge about:
- the facilities and construction of modern operative systems
- the facilities and functions of modern database systems
- problems related to simultaneous users

Business Understanding

The student has knowledge about:
- how IT can improve business processes and develop the business
- standard systems in a company, including organisational concepts
- reasons for investing in IT
- IT security

Skills

Programming

The student can:
- specify and construct algorithms
- use programming language to realise algorithms, design patterns, abstract data types, data struc-tures, design models and user interfaces
- use a modern integrated development tool, including version control systems
- realise models in a database system and construct programs which use a

database interface
- design and construct programs in the form of interrelated processes/threads
- design applications based on a layered software architecture
- use software components/libraries
- prepare documentation in relation to valid de-facto standards in the field
- use up-to-date techniques and tools for testing and quality assurance
- evaluate qualitative and quantitative properties of algorithms and data structures

Systems Development
The student can:
- model and design It systems
- use an appropriate software architecture
- document and communicate product and process – including traceability
- ensure quality of product and process
- use appropriate design patterns
- involve users
- design user interfaces

Technology
The student can:
- use mechanisms for synchronising processes and threads

Business Understanding
The student can:
- analyse and model business processes
- participate in project work
- use innovative methods with focus on project work in practical development projects
- communicate and explain to both internal and external partners
- take part in the implementation of IT and change management

Competencies
Programming
The student can:
- participate as a professional programmer in development and maintenance projects
- keep up to date with current programming languages, development tools, programming technology and program design

Systems Development
The student can:
- participate as a competent member of a development project
- reflect on and adapt processes and methods in practice

Technology
The student can:
- acquire knowledge about new operative and database systems

Business Understanding
The student can:
- take part in and understand the relationship between the design of business processes and design of IT systems
- collaborate with representatives from the user organisation and the development organisation based on an understanding of business processes and concepts
- acquire knowledge about new technology in a business-oriented perspective

Examination and Assessment
- 2nd semester: First Year Exam. One grade assessment.

Programming and Technology
Key Subject Area: Programming and Technology
Timing: 1st and 2nd semester
Work load: 20 ECTS, comprised of: 10 ECTS from the key subject area Programming   10 ECTS from the key subject area Technology
Aim: The second compulsory educational element in the education is intended to qualify the student to: - master more advanced elements in the datamatic field and realise distributed software systems   - be able to contribute to the selection and use of technology in connection with systems devel-opment and programming of distributed IT systems, and to give the student a detailed knowledge about technological aspects
Learning Objectives: ***Knowledge*** *Programming* The student has knowledge about: the integration of heterogeneous components and platforms

Technology

The student has knowledge about:

- principles of designing and realising distributed systems
- fundamental network terminology

Skills

Programming

The student can:

- use techniques for the construction of programs with simultaneous users
- design and construct programs based on interrelated processes in a distributed architecture
- construct programs which use modern network technologies
- use design patterns for distributed software architecture
- develop software components
- develop web applications

Technology

The student can:

- include relevant technological aspects in the development of distributed systems, including:
  - the use of central security concepts and threats
  - the use of virtualization
  - the use of services and programming interfaces for communication
  - the use of standard application protocols

Competencies

Programming

The student can:

- participate as a professional programmer in integration projects
- keep up to date with current programming languages, development tools, programming technology and program design

Examination and Assessment

- 2nd semester: Programming Exam. One grade assessment.

Systems Development
Key Subject Area: Systems Development
Timing: 3rd semester
Work load: 10 ECTS from the key subject area Systems Development
Aim: The third compulsory educational element is intended to quality the student within the development, en-hancement and integration of distributed IT systems on a systematic basis, using relevant and modern sys-tems development methods and techniques
Learning Objectives:

Knowledge
The student has knowledge about:
- the importance of quality criteria for the systems development process and the final systems design

Skills
The student can:
- select and use appropriate processes models and systems development methods
- work systematically with a project using a chosen systems development method
- plan, evaluate and adjust projects
- document and communicate product and process – including traceability
- select and use appropriate design patterns and components
- design systems which are integrated with other systems

Competencies
The student can:
- adapt a systems development method to a project, taking into account the actual situation
- participate as a competent member of a development project
- acquire knowledge about new process models and systems development methods
- reflect on and adapt processes and methods in practice

Examination and Assessment
- 3rd semester: Systems Development Exam. One grade assessment.

3.4. Elective Educational Elements: Electives and Specialisation

In addition to the compulsory elements, the programme comprises elective educational elements corresponding to 30 ECTS credits.

These are offered as a means for students to specialise themselves in subjects related to computer science. The elective educational elements take into account the needs of local business communities, contemporary tendencies as well as students' wishes. Information on the available electives is available in the Electives Catalogue.

3.5. Internship

The Academy Profession Degree Programme in Computer Science includes both theory and practical experience with the purpose of supporting the students' continuous learning process and contributing to the fulfillment of the learning objectives specified

for the study programme. During the internship, students are faced with professionally relevant issues, just as they become familiarised with relevant job functions. Students must actively and independently seek a placement with one or more private or public companies, and Cphbusiness ensures that the internship settings are satisfactory.

The internship is unpaid.

Internship
Timing: 5th semester
Work load: 15 ECTS
Purpose: In combination with other elements of the education, the internship programme is designed to contribute to the student's development of practical competences. During the internship period the student has an opportunity to try out in practice the methods, theories and tools acquired in the education by working on and solving specific practical assignments within information technology.
Learning objectives: *Knowledge* The student has knowledge about: • daily operations in the internship company *Skills* The student can: • use comprehensive technical and analytical work methods related to employment within the field • evaluate practical issues and draw up possible solutions • manage the structuring and planning of daily assignments within the profession • communicate practical issues and substantiated solution proposals *Competencies* The student can: • deal with developmental practical and academic situations within the IT field • acquire new knowledge, skills and competences within the field • take part in professional and cross-functional collaboration in a professional manner
Examination and Assessment: Find details about assessment in the exam section of this curriculum and in local documents relevant to the programme.

3.5.1. Rules Regarding the Internship

Requirements for the parties involved
The hosting company, offering the internship, provides a contact person who must be at the student's disposal for the duration of the internship. The contact person and the student must draw up an internship agreement in collaboration, and this

agreement, which must be in writing, should outline the types of tasks and assignments the student will face during his/her internship. The internship agreement must take into account not only the learning objectives of the internship stipulated in this curriculum but also the student's prior knowledge, training and qualifications.

The internship agreement should afterwards be submitted for approval at Cphbusiness.

Close contact will be established between the student and one of the Cphbusiness appointed internship supervisors, who will act as the student's sparring partner for the entire duration of the internship and in addition hereto the examiner on the report.

A manual, describing the internship process in greater detail, is available through Cphbusiness.

Upon completion of the internship period, both the student and the hosting company will have to participate in an evaluation of the internship period. The student must complete the evaluation in order to attend the exam.

Roles and responsibilities of the parties involved

Student	Company	Cphbusiness
Seeks a placement with a company	Provides a contact person	Ensures satisfactory internship settings Appoints a Cphbusiness internship supervisor
The student and hosting company collaboratively draw up an internship agreement that takes into account the learning objectives of the internship		Discusses the internship agreement with the student Approves the submitted internship agreement, provided that it meets Cphbusiness' demands
The student and hosting company cooperate during the internship The contact person and the internship supervisor support the student for the duration of the internship		
(Prepares for the internship examination)		
Participates in an evaluation of the internship	Participates in an evaluation of the student and the internship	
(Attends the exam)		(Conducts the exam)

3.6. Teaching and Working Methods

At Cphbusiness, various teaching methods are practised. Among these are lectures, cases, assignments, practical and theoretical exercises, laboratory work, oral presentations, homework/study assignments, excursions/field trips, etc.
The teaching may be thematised, just as it may be divided into different courses.

The purpose of the varied teaching methods is that students, by means of the selected teaching modes, acquire knowledge, skills and competences within the programme's key subject areas, and that students apply these in accordance with the programme's learning objectives.

3.7. Language of Instruction

Computer Science is an English taught programme, and all teaching is in English. In some cases, students may be able to choose electives in Danish, and students are free to enter into an internship agreement with a company in which the spoken language is Danish. [1]

4. INTERNATIONALISATION

4.1. Study Abroad

All full-time studies at Cphbusiness shall be organised in a manner that allows students the opportunity to take at least one of the study programme components abroad within the nominal length of study.

The possibility of studying abroad pertaining to the Computer Science programme include:
- 4th semester
- The internship
- Final examination project

Educational elements taken abroad can be approved for credit transfer provided that they are compatible with and meet the requirements regarding contentss and level stipulated in subsections about the internship and credit transfer).

Students wishing to study abroad have to apply for credit transfer before the period is initiated in due time to receive a pre-approval of credit transfer. The decision as to

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[1] Computer Science is offered as a Danish taught programme as well. For a description of the study programme with Danish as the language of instruction, please consult the Danish version of this curriculum (Studieordning for datamatiker AK).

whether the educational elements can be approved for credit transfer rests on Cphbusiness' evaluation of the contentss and standards offered by the educational institution or host company. When the period abroad is completed, students who have received a pre-approval of credit transfer have to document that they have successfully completed the pre-approved educational elements. As part of the pre-approval process, students shall concur that Cphbusiness has the right to obtain information relevant to the final credit transfer following the period of study abroad. A pre-approved educational element will be regarded as successfully completed, if the student has passed the element in accordance with the regulations in effect at the hosting educational institution.

5. EXAMINATION AND ASSESSMENT

5.1. General Rules Regarding the Exam

For exams at Cphbusiness, the following rules apply:

- The ministerial order no. 1519 of 16 December 2013 on examinations (the Examination Order), as well as
- The ministerial order no. 262 of 20 March 2007 on the grading scale and other forms of assessment (the Grading Scale Order)

In addition, the Cphbusiness rules and regulations regarding examination in effect at the time in question apply to examinations. Please see further instructions at the local documents published at the institution's Intranet.

5.2. Description of Assessment of Educational Elements

In the following, an overview of the examinations at the Computer Science programme is provided. Requirements and details on the specific examinations, including examination period, form and materialities, the use of aid during examination, etc., are available in the local documents relevant to the programme.

Each examination, which may test several educational elements concurrently, will appear with one grade on the final diploma.

Diagrammatic outline of the connection of the examinations, the educational elements and the structure of the study programme

Semester	Name of examination (external/internal)	Educational element	Noted on the final diploma	ECTS
2nd semester	First Year Exam (external)	Programming, Systems Development, Technology, Business Understanding	One grade	60
3rd semester	Programming Exam (internal)	Programming, Technology	One grade	20
	Systems Development Exam (internal)	Systems Development	One grade	10
4th semester	Electives Exam (internal)	Electives	One grade	30
5th semester	Internship Exam (internal)	Internship	One grade	15
	Final Exam Project (external)	Final exam project	One grade	15

5.3 Other Requirements for Completion of Activities

Besides the examinations mentioned above, students are required to attend and have a number of obligatory study activities approved in order to attend the exam and continue their studies, cf. the Examination Order section 9 and section 5, subsection 2.

3.5.1. Mandatory Learning Activities: Requirements for Participation and Submission of Assignments

In order to attend some of the exams, students must have a number of mandatory learning activities approved. In case the mandatory learning activity is not approved, the student cannot attend the exam, which counts as an attempt at the exam. The student is automatically signed up for the re-examination; however, the student must still pass the mandatory learning activity, as it is the prerequisite for attending the exam.

The mandatory learning activities vary, depending on the educational elements. Examples of mandatory learning activities include requirements for participation, presentations, assignments, etc. The mandatory assignments for the Computer Science programme can be found in the local documents relevant to the study programme.

3.5.2. The Study Start Test

Cphbusiness conducts study starts tests on all full-time study programmes. A student must fulfil the study start test requirement in order to remain enrolled at the study programme, cf. the Examination Order section 9.

Study Start Test
Timing: The study start test must be conducted no later than two months after commencement of the study programme
Form: The study start test is described in greater detail in the local documents relevant to the study programme.
Assessment: Approved/Not approved.
Admission criteria: None
Consequences of not passing: If the student does not fulfil the study start test requirements in the first attempt, it is possible to participate in a "re-examination", which will be held no later than three months after commencement of the study programme. If the re-exam is not approved, the student cannot continue the study programme and his/her enrolment will be terminated, cf. the Examination Order section 9.
Special conditions and specifications for the study start test: The study start test is not covered by the regulations on complaints regarding examinations, cf. the Examination Order section 9 subsection 4. Under special circumstances, such as serious illness or other unusual circumstances, Cphbusiness is entitled to grant exemptions from rules stipulated in this section. Students will have to submit a request for exemption, which must specify and document the reasons for exemption.

5.3.3 The First-Year Exam

Students must meet a study activity requirement called the first-year exam. In order to meet this requirement, students must pass the exam in 'Programming, Systems Development, Technology and Business Understanding' exam before the end of their first year of study.

Consequences of not passing the first-year exam

In the event that a student does not pass the respective exam within the stipulated time frame, the enrolment of the student will be terminated, cf. the Examination Order section 8, subsection 2, and the Admission and Enrolment Order section 36, subsection 1, number 4.

5.4. The Final Examination Project

The final examination project, concluding the Computer Science programme, must document the students' abilities to understand and analyse a practice-based problem related to their respective fields of study by means of relevant theory and methodology. Thus, central subjects from the programme should be covered by the project, and a problem statement, which must be key to not only the programme but also the respective type of industry/profession, has to be formulated by the student, and if desired in cooperation with a private or public company. Cphbusiness will subsequently approve the problem statement.

The final examination project is conducted as an external examination, which, together with the internship report and other programme examinations, should document that the programme's learning objectives and requirements are met. The examination comprises a written part and an oral part that result in a single joint grade. The examination can only take place after the student has passed all other educational elements. For more about the final examination project, see section 5.2. in this curriculum and the final examination project manual.

Final Examination Project
Timing: By the end of 5th semester
Purpose: The final examination project must document that the learning objectives and outcomes for the study programme have been met, cf. appendix 1 in the ministerial order for the study programme. The purpose of the final examination project is to give the student an opportunity to document his/her understanding of practice-related and central theories and methods and their use in solving issues related to a specific task within the field of study. The problem statement, which must be central and relevant for the education and the IT field, is to be worked out by the student, possibly in cooperation with a private or public company. The problem statement must be approved by the institution.
Learning goals: The objectives for the learning outcome comprise the knowledge, skills and competences that a graduate with an AP degree in Computer Scientist is expected to achieve during the education.   *Knowledge* The student has knowledge about: • standard applied practice, theory and methods in relation to software development • fundamental company operations in relation to systems development • technological concepts and the technological platform of computer systems in relation to programming, error tracing and initialisation   *Skills* The student can: • methodically identify requirements to IT systems, comprising assessment of

whether the requirements are feasible within the set framework
- apply state-of-the-art programming techniques and tools for software construction, including ensuring the quality of the developed product
- document the work performed in a manner which makes the documentation useful for the target group in question
- apply relevant knowledge in connection with systems development, programming and initialisation
- 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
- communicate practice-related problems and solution options to collaboration partners and users

Competencies
The student can:
- participate in the development of the practical aspects of software development
- participate in project work in a competent manner
- participate in professional and interdisciplinary cooperation in connection with software development, applying a professional approach
- participate in systems development processes, applying state-of-the-art methods, techniques and tools
- in a structured context acquire new knowledge, skills and competences in relation to the IT industry, including domain and technological knowledge and the application of new methods, techniques and tools.

Examination and Assessment:
- 5th semester: External exam with a single grade according to the 7-point grading scale. The exam consists of a written project and an oral defence. The examination can only take place after the student has passed all other educational elements.

6. OTHER RULES

6.1. Credit Transfer and Change of Study Programme

In some cases, Cphbusiness may be able to transfer ECTS and educational elements, or parts hereof, completed at other educational institutions, provided that the elements in question correspond to elements included in this curriculum. Cphbusiness bases the decision about a possible credit transfer on an assessment of the element's contents, level etc.

A transferable educational element from a stay abroad will be regarded as successfully completed, if the student has passed the element in accordance with the rules and regulations in effect at the educational institution at which the element was taken. Students are obliged to notify Cphbusiness of any previously passed educational elements at a higher educational level, which includes educational elements from both Danish and foreign higher educational institutions, presumed to be transferable. Cphbusiness handles all applications for credit transfer after these rules.

Change of study programme
A student requesting a change to another study programme at the same educational institution or at another educational institution or requesting transfer to the same programme at another educational institution shall apply for enrolment at the relevant programme. Change of study programmes are regulated by the rules that apply at the receiving educational institution.

Transfer to the same study programme at another educational institution can only take place after the student has passed study elements quivalent to the first year of the study programme, to which the applicant wishes to change or transfer, or to which the applicant wants to be admitted, at the receiving institution.

It shall be a condition for enrolment that the study programme has vacant places. Under special circumstances, the receiving institution may permit that transfer within the same programme may take place through enrolment even though the applicant has not passed study elements equivalent to the first year, cf. the Admission and Enrolment Order section 35, subsection 2.

6.2. Exemptions from the Curriculum

Under special circumstances, Cphbusiness is entitled to grant exemptions from rules stipulated in this curriculum laid down by Cphbusiness. Students will have to submit a request for exemption, which must specify and document the reasons for exemption. Cphbusiness will subsequently process the request and notify the student of the decision once it is made.