

# Curriculum for the Bachelor's Degree Programme in Software Development

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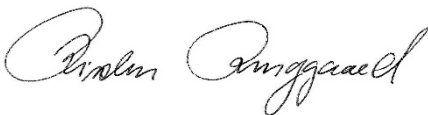
Bachelor's Degree Programme in Software Development  
Professionsbachelor i softwareudvikling

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# 1. FRAMEWORK

This curriculum, covering the study programme for the bachelor's degree programme in software development, hereinafter referred to as the study programme or the programme, is composed in compliance with ministerial order no. 247 of 15 March 2017: 'Bekendtgørelse om tekniske og merkantile erhvervsakademiuddannelser og professionsbacheloruddannelser' by the Danish institutions of higher education approved to offer the particular programme.

## *National parts and institution-specific parts of the curriculum*

Parts of the curriculum have been stipulated conjointly with these institutions in the respective education network, whilst others have been determined by Cphbusiness alone. The national parts have been incorporated in this document and constitute the following subsections: 1.1, 1.3, 3.2 w.r.t content descriptions , 3.4, 5.4 and 6.1. The remaining parts are institution specific.

The national parts have been co-created by all institutions offering the study programme, and they have committed themselves to ensuring national competence and qualifications. The national parts of the curriculum have been approved by the national education network for business academies on 9 June 2017 and 24 August 2017.

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

## **1.1. Purpose and Objectives of the Study Programme**

The purpose of the bachelor's degree program in software development is to qualify the graduate to act independently as an IT specialist with a focus on integration and architecture, and to be part of teamwork about the development of large distributed IT systems in IT companies, IT consultancies or internal IT development departments.

### *Knowledge*

The student must have knowledge of:

- The strategic role of testing in system development
- Globalisation of software production
- System architecture and its strategic importance for the company's business
- Applied theory and methodology and common technologies within the domain
- Various database types and their applications.

### *Skills*

The student can:

- Integrate IT systems and develop systems that support future integration
- Use contracts as a control and coordination mechanism in the development process
- Assess and select database systems, and design, redesign and optimise databases
- Plan and manage development processes involving many geographically separated project participants
- Plan and implement testing for large IT systems

### *Competencies*

The student can:

- Identify links between applied theory, methods and technology and reflect on their suitability in various situations
- Engage in professional collaboration to develop large systems by applying common methods and technologies
- Familiarise themselves with new technologies and standards for handling integration between systems,
- Through practice, develop their own competency profile from a primarily back-end developer profile to performing tasks as a system architect
- Handle the establishment and realisation of a business and technologically appropriate architecture for large systems.

## **1.2. Title, Duration and Certificate**

### *Title*

Upon completion of the programme, graduates are entitled to use the title *Bachelor of Software Development* (in Danish: *professionsbachelor i softwareudvikling*).

In agreement with the Danish Qualification Framework for Lifelong Learning, the programme is graded at level 6.

### *Duration and maximum length of study*

With 60 ECTS credits (European Credit Transfer System) corresponding to a full-time student's work for one year of study, cf. section 10 in ministerial order no. 247 of 15 March 2017: 'Bekendtgørelse om tekniske og merkantile erhvervsakademiuddannelser og professionsbacheloruddannelser', this programme amounts to 90 credits in total.

Study programmes that do not exceed 120 ECTS must be completed within the number of years corresponding to twice the nominal length of study, and the remaining programmes must be completed no later than the nominal length of study plus two years, cf. section 6, subsection 2, in the ministerial order on technical and commercial academy profession programmes and bachelor programmes. This means

that this programme must be completed within 3½ years. Under exceptional circumstances, Cphbusiness is entitled to grant exemptions from this rule.

#### *Certificate*

Upon completion of the programme, a certificate is issued to the student by Cphbusiness.

### **1.3. Commencement**

This curriculum is effective as of 1 September 2017 and the terms and conditions stated herein apply to all students who are enrolled in the study programme by this date. Simultaneously, previous joint national curricula are NOT valid from this date.

### **1.4. Interim Provisions/Transitional Arrangements**

Students covered by curricula prior to the present will be transferred to the present curriculum according to the decision listed above. Students enrolled on other curricula may however request that they remain covered by their original curriculum until their completion of the programme, if this is possible without exceeding the maximum ECTS-points for the study programme, as well as meeting the previously listed requirements regarding the maximum length of study, cf. subsection 1.2.

As regards the release of a new curriculum, or in the event of substantial alterations to the present curriculum, transitional arrangements will be laid down in the new curriculum.

### **1.5. Legal Framework**

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

*(The following are English translations of Danish texts published in the Danish Official Gazette (Lovtidende). In the event of a discrepancy between the translated version and the Danish version, the latter is valid)*

- Act no. 935 of 25 August 2014 on academies of professional higher education (the Academy Profession Act) (*Erhvervsakademiloven*)
- Act no. 1147 of 23 October 2014 on academy profession programmes and professional bachelor programmes (*LEP-loven*)
- Act no. 247 af 15/03/2017 on academy profession programmes and professional bachelor programmes
- Ministerial order no. 1500 of 2 December 2016 on examinations (the Examination Order) (*Eksamensbekendtgørelsen*)
- Ministerial order no. 107 of 27 January 2017 on admission and enrolment on academy profession programmes and bachelor programmes (*Adgangsbekendtgørelsen*)
- Ministerial order no. 114 of 3 February 2015 on the grading scale and other forms of assessment (the Grading Scale Order) (*Karakterbekendtgørelsen*)

The respective acts and orders can be obtained through *Retsinformation* at [www.retsinfo.dk](http://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 ministerial 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.

Having completed a computer science degree fulfils the formal admission requirements for the professional bachelor programme in software development. Furthermore applicants to the English version of this study programme must document proficiency in English corresponding to the Danish level B.

### 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.

If there are more applicants than student places, applicants will be according to the following criteria:

- Average grade from the qualifying study programme
- Grades and ECTS credits in programming and system development
- Relevant work experience

## 3. PROGRAMME CONTENT

### 3.1. Programme Structure

As a prerequisite for completing the study programme, students must pass educational elements equivalent to a total workload of 90 ECTS credits. A full-time semester encompasses educational elements, including the internship, corresponding to 30 ECTS credits.

The programme consists of educational elements equivalent to 60 ECTS credits, of which 40 ECTS are national education elements and 20 ECTS are local educational elements, an internship equivalent to 15 ECTS credits and a bachelor project equivalent to 15 ECTS credits.

Educational Elements		1 <sup>st</sup> year	2 <sup>nd</sup> year
National educational elements	Developing Large Systems (10 ECTS)	10 ECTS	
	Databases for Developers (10 ECTS)	10 ECTS	
	System Integration (10 ECTS)	10 ECTS	
	Testing (10 ECTS)	10 ECTS	
Local educational elements	Exploration and Presentation (5 ECTS)	5 ECTS	
	Electives (15 ECTS)	15 ECTS	
Internship			15 ECTS
Bachelor project			15 ECTS
<b>ECTS total</b>		<b>60 ECTS</b>	<b>30 ECTS</b>

The sum of all educational elements and other study activities may not exceed the prescribed 90 ECTS credits.

All educational elements, including the bachelor project, are assessed and evaluated. When the outcome of the assessment is either 'passed' or at least the grade 02, the educational element concerned, is perceived as passed. For more information on examinations, please read chapter 5.

### 3.2. National Educational Elements

The programme consists of the following national educational elements:

- Developing Large Systems (10 ECTS)
- Databases for Developers (10 ECTS)
- System Integration (10 ECTS)
- Testing (10 ECTS)

Learning goals, ECTS scope, content and number of examinations for the national educational elements have been determined collaboratively by the institutions of higher education offering the study programme.

The national educational elements for the programme consist of study activities corresponding to 40 ECTS, and consist of the elements listed below.

Developing Large Systems
<b>Timing:</b> 1 <sup>st</sup> year of study
<b>Scope:</b> 10 ECTS
<b>Content:</b> The aim of the subject element is to TRAIN the student to develop large-scale IT systems, where scalability is a key characteristic. The student must have knowledge of how key system development methods handle issues related to scalability and the development of large distributed systems. The student must have knowledge of concepts, techniques and technologies for the continuous integration and delivery of software-based systems. The student must be able to design,

implement, and maintain large distributed systems in distributed development teams.

**Learning objectives:**

*Knowledge*

The student must have knowledge of:

- Issues related to the development of distributed and large-scale IT systems, and how disciplined and agile development methods prescribe how these issues should be handled
- The advantages, disadvantages and costs of using a system for the continuous integration and delivery of IT systems
- Quality criteria for the design of interfaces to subsystems
- Configuration and error reporting systems dedicated to the development of large distributed systems

*Skills*

The student can:

- Apply techniques for dividing a system into subsystems
- Design and specify requirements for subsystems
- Use version control systems dedicated to the development of large distributed systems in a distributed development team
- Use a system for continuous integration and delivery  
Use architecture patterns dedicated to the development of large distributed systems

*Competencies*

The student can:

- Cooperate in large systems development organizations
- Participate in globally distributed development
- Adapt development methods and processes to the development of large distributed systems.

**Assessment:**

The examination in Developing Large Systems, 7 point grading scale

**Databases for Developers**

**Timing:** 1<sup>st</sup> year of study

**Scope:** 10 ECTS

**Content:** The aim of the subject element is to train the student to be able to select and apply various database types appropriately in relation to various fields of application. The student must also be able to analyse and develop in relation to large databases, including redesign and optimisation.

**Learning objectives:**

*Knowledge*

The student must have knowledge of:

- Various database types and the underlying models
- A specific database system's storage organisation and query execution
- A specific database system's optimisation possibilities – including advantages and disadvantages



- Database-specific security problems and their solutions
- Concepts and issues in relation to data warehousing, including big data
- The particular issues raised by having many simultaneous transactions, including in connection with distributed databases
- Relational algebra (including its relationship to execution plans)

#### *Skills*

The student can:

- Transform logical data models into physical models in various database types
- Implement database optimisation
- Use parts of the administration tool to assist in the optimisation and tuning of existing databases, including the incorporation of a specific DBMS' execution plans
- Use a specific database system's tools for handling simultaneous transactions
- Use the programming and other facilities provided by a modern DBMS
- Use an object-relational mapping tool

#### *Competencies*

The student can:

- Analyse the application domain in order to select a database type
- Divide responsibility for tasks between the application and DBMS during system development, to ensure the best possible implementation.

#### **Assessment:**

Examination in Databases for Developers, 7 point grading scale

### **System Integration**

**Timing:** 1<sup>st</sup> year of study

**Scope:** 10 ECTS

**Content:** This subject element must help ensure that the student develops the competencies to be able to work with technical system integration. After completing this module, the student must be able to integrate existing systems in connection with the development of new systems, and develop new systems supporting future integration.

#### **Learning objectives:**

##### *Knowledge*

The student must have knowledge of:

- Business considerations in relation to system integration
- Standards and standards organisations
- Storage, transformation and integration of data sources
- The concept of services and their ties to service-oriented architectures
- Technologies which can be used to implement a service-oriented architecture
- Tools for integration

##### *Skills*

The student can:

- Use an object-oriented system in a service-oriented architecture
- Design a system that is easy to integrate with other systems, and uses existing services

- Transform or expand a system so that it can function in a service-oriented architecture
- Use patterns that support system integration
- Integrate generic and other systems
- Choose from various integration methods
- Translate elements in a business strategy into specific requirements for system integration

#### *Competencies*

The student can:

- Choose from various integration techniques
- Acquire knowledge of developments in standards for integration
- Adapt IT architecture to take into account future system integration.

#### **Assessment:**

Examination in System Integration, 7 point grading scale

### Testing

**Timing:** 1<sup>st</sup> year of study

**Scope:** 10 ECTS

**Content:** The aim of the subject element is to train students in planning and conducting testing. The student must understand the place and significance of testing in methods for system development. The student must be able to design and carry out systematic testing for large systems, including the establishment of automated testing. The student must also master concepts and techniques for the design and construction of testable systems.

#### **Learning objectives:**

##### *Knowledge*

The student must have knowledge of:

- Significant test strategies and models and their role in system development
- Testing as an integral part of a development project
- Various types of testing and their applications

##### *Skills*

The student can:

- Ensure traceability between system requirements and testing at all levels
- Apply both black-box and white-box testing techniques
- Apply various criteria for the degree of test coverage
- Use techniques for verification and validation
- Use techniques and tools for automated testing
- Build systems to manage testing and the fault rectification process in development projects

##### *Competencies*

The student can:

- Define, plan and carry out testing in a development project that matches the project's quality requirements
- Plan and manage the implementation of internal and external testing of software systems.

- Design testable systems

**Assessment:**

Examination in Testing, 7 point grading scale

### 3.3. Local educational elements and electives

In addition to the national educational elements, the programme consists of a number of local educational elements, including electives, corresponding to 20 ECTS in total. Of the 20 ECTS one educational element, corresponding to 5 ECTS, apply to all students. This educational element is described below.

The remaining 15 ECTS are electives to be chosen individually by each student. For descriptions of these electives, please see the Electives Catalogue for the programme.

#### Exploration and Presentation

**Timing:** 1<sup>st</sup> year of study

**Scope:** 5 ECTS

**Contents:** The educational element Exploration and Presentation will contribute to the student's ability to explore and present knowledge relevant to professional software development on a methodological and systematic basis. The student should be able to reflect on the industry's as well as his/her own practice and thereby contribute to the development of the profession.

**Learning Objectives:**

*Knowledge*

The student has knowledge about:

- Key concepts in academic studies
- Types of sources and their quality
- Methodology and quality assessment of data and knowledge
- Different forms of communication

*Skills*

The student can:

- Identify and define problems and issues
- Choose suitable research methods for a given problem
- Carry out investigations methodically
- Draw conclusions from the results of the studies and outline these
- Convey the study to well-defined audiences

*Competencies*

The student can:

- Find and quality assess sources of professional knowledge
- Contribute to the creation of new professional knowledge through systematic studies and exploration.

**Assessment:**

Examination in Exploration and Presentation, 7 point grading scaling

### 3.4. Internship

The Bachelor's Degree programme in Software Development 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, and become familiarised with relevant job functions. The student actively and independently seeks a placement with one or more private or public companies, and Cphbusiness ensures that the internship settings are satisfactory.

The internship is unpaid.

<b>Internship</b>
<b>Timing:</b> 3 <sup>rd</sup> semester
<b>Scope:</b> 15 ECTS
<b>Purpose:</b> The internship is organised so that it contributes – in combination with the rest of the study programme – to the student developing practical competencies. The aim of the internship is to enable the student to apply the programme's methods, theories and tools by performing specific practical software development tasks.
<p><b>Learning objectives:</b></p> <p><i>Knowledge</i> The student must have knowledge of:</p> <ul style="list-style-type: none"> <li>• Daily operations throughout the internship company</li> </ul> <p><i>Skills</i> The student can:</p> <ul style="list-style-type: none"> <li>• Apply versatile technical and analytical working methods linked to employment within the profession</li> <li>• Evaluate practice-oriented issues and identify possible solutions</li> <li>• Manage the structuring and planning of day-to-tasks within the profession</li> <li>• Communicate practice-oriented issues and reasoned solution proposals</li> </ul> <p><i>Competencies</i> The student can:</p> <ul style="list-style-type: none"> <li>• Handle development-oriented, practical and professional situations in relation to the profession.</li> <li>• Acquire new knowledge, skills and competencies related to the profession</li> <li>• Participate in academic and interdisciplinary collaboration with a professional approach.</li> </ul>
<p><b>Assessment:</b> Examination in Internship, 7 point grading scale</p>

#### 3.4.1. Rules Regarding the Internship

*Requirements for the parties involved*

The hosting company, offering the internship, provides a contact person who must be available to the student for the duration of the internship. The contact person and the student must jointly draw up an internship agreement. This agreement must be in writing and 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 must be submitted afterwards 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 duration of the internship and in addition the report examiner.

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*

<b>Student</b>	<b>Company</b>	<b>Cphbusiness</b>
Seeks a placement with a company	Provides a contact person	Ensures satisfactory internship settings  Appoints a Cphbusiness internship supervisor
The student and hosting company jointly 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		
(Writes an internship		

report)		
Participates in an evaluation of the internship	Participates in an evaluation of the student and the internship	
(Attends the exam)		(Conducts the exam)

The internship is unpaid.

### 3.5. Teaching and Working Methods

At Cphbusiness, our learning approach is that business competencies are best developed when the study programme's study activities put practice and concrete issues at the heart of learning. Further we believe that that it is the work of creating value in practice that drives the motivation and commitment of our students.

Cphbusiness uses an education model that focuses on:

- Facilitating a motivating and engaging learning environment based on practice
- Transposing and disseminating relevant knowledge from research and industry in a concrete practice
- Supporting students' active participation and study intensity through relevant study activities
- Involving students' knowledge and work experience as a resource so that students are co-creators of learning
- Supporting learning through ongoing dialogue and a common feedback culture
- Flexible work, involving digital learning activities, focusing on using our resources and improving student learning outcomes, independent of time and place.

There are several different forms of teaching and working at Cphbusiness that support student learning. For example: lectures, case work, small assignments, practical and theoretical exercises, laboratory work, oral presentations, homework, excursions, etc. Teaching is structured in one or more learning flows per semester.

The purpose of the various forms of working is for students to acquire knowledge, skills and competencies within the study programme's subject areas, through the chosen approach, and to apply these in accordance with the study programme's learning outcome objectives.

### 3.6. Language of Instruction

The Bachelor's Degree Programme in Software Development is an English taught programme, and all teaching is in English. In some cases, students may be able to take electives in Danish, and students are free to enter into an internship agreement with a company in which the spoken language is Danish.<sup>1</sup>

Educational elements taught in English are examined in English, cf. subsection 5.9.

## 4. INTERNATIONALISATION

### 4.1. Study Abroad

All full-time studies at Cphbusiness must 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 programme includes:

- The entire second semester
- The internship

Educational elements taken abroad can be approved for credit transfer provided that they are compatible with and meet the requirements regarding contents and level stipulated in the subsections regarding 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 whether the educational elements can be approved for credit transfer rests on Cphbusiness' evaluation of the contents and standards offered by the educational institution or host company.

As part of the pre-approval process, students must consent to Cphbusiness obtaining 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. 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.

## 5. EXAMINATION AND ASSESSMENT

### 5.1. General Rules Regarding the Exam

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<sup>1</sup> The Bachelor's Degree Programme in Software Development 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 professionsbacheloruddannelsen i softwareudvikling 2017).

The latest versions of the ministerial orders no. 1500 of 2 December 2016 on examinations (the Examination Order) and no. 115 of 3 February 2015 on the grading scale and other forms of assessment (the Grading Scale Order) apply to examinations at Cphbusiness. In addition, the Cphbusiness regulations and programme specific documents concerning examinations in effect at the time in question apply to examinations.

## 5.2. Description of Assessment of Educational Elements

An overview of the examinations is provided below. Requirements and details on the specific examinations, including dates, form and materials, the use of aids during examination, etc., are made public to the students in examination catalogues on the Learning Management System.

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

*Diagrammatic outline of the links between the examinations and the educational elements and the structure of the study programme*

Semester	Name of Examination (internal/external)	Educational Element	ECTS	Noted on the final diploma
<b>1st year of study</b>	Exam in Developing Large Systems (external)	Developing Large Systems	10	One final grade
	Exam in Databases for Developers (internal)	Databases for Developers	10	One final grade
	Exam in System Integration (external)	System Integration	10	One final grade
	Exam in Testing (internal)	Testing	10	One final grade
	Exam in Exploration and Presentation (internal)	Exploration and Presentation	5	One final grade
	Exam in Elective 1 (internal)	Elective	5	One final grade
	Exam in Elective 2 (internal)	Elective	10	One final grade
<b>2nd year of study</b>	Exam in Internship (internal)	Internship	15	One final grade
	Bachelor's project (external)	Bachelor's project	15	One final grade



### 5.3. Other Requirements for Completion of Activities

Besides the examinations mentioned above, students are required to attend and have a number of mandatory study activities approved in order to attend the exam and continue their studies, cf. the Examination Order section 10 and section 5, subsection 3.

#### 5.3.1. 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. If the mandatory learning activity is not approved, the student cannot attend the exam, and this 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 a 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 bachelor's degree programme in Software Development can be found in the examination catalogue for the study programme.

#### 5.3.2. The Study Start Test

Cphbusiness conducts study start 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 10.

Study start test
<b>Timing:</b> The study start test must be conducted no later than two months after the commencement of the study programme
<b>Form:</b> Details about the study start test are described in the examination catalogue for the particular programme
<b>Assessment:</b> Approved/Not approved
<b>Admission requirements:</b> None
<b>Consequences of not passing:</b> If the student does not fulfil the study start test requirement in the first attempt, the student has another attempt, which must be conducted no later than three months after the commencement of the study programme. If the student does not fulfil the test on the second attempt, the student cannot continue on the study programme and his/her enrolment will consequently be cancelled, cf. the ministerial order on examinations section 10 and the ministerial order on enrolment section 37, subsection 1, number 3.
<b>Specific for the study start test:</b> The study start test is not covered by the

regulations on examination complaints, cf. the ministerial order on examinations section 10, subsection 4. Cphbusiness can grant exemptions from the appointed time required to fulfil the study start test requirement. Exemptions can be granted in cases of serious illness, child birth or unusual circumstances. Such cases must be documented.

## 5.4. Bachelor Project

The bachelor's project must document the student's understanding of and ability to reflect on the practices of the profession and the use of theory and methods in relation to a real-life problem. The problem statement, which must be central to the programme and profession, is formulated by the student, possibly in collaboration with a private or public company. The academy approves the problem statement.

Bachelor Project
<b>Scope:</b> 15 ECTS
<b>Timing:</b> By the end of 3 <sup>rd</sup> semester
<b>Purpose:</b> In their bachelor's project, the student must document the ability to work with a complex and practice-oriented issue in relation to a specific IT project, using an analytical and methodological basis.
<p><b>Learning objectives:</b></p> <p>The final bachelor project must demonstrate that the programme's graduation level has been reached. The learning objectives for the study programme are consequently repeated below:</p> <p><i>Knowledge</i></p> <p>The student must have knowledge of:</p> <ul style="list-style-type: none"> <li>• The strategic role of testing in system development</li> <li>• Globalisation of software production</li> <li>• System architecture and its strategic importance for the company's business</li> <li>• Applied theory and methodology and common technologies within the domain</li> <li>• Various database types and their applications.</li> </ul> <p><i>Skills</i></p> <p>The student can:</p> <ul style="list-style-type: none"> <li>• Integrate IT systems and develop systems that support future integration</li> <li>• Use contracts as a control and coordination mechanism in the development process</li> <li>• Assess and select database systems, and design, redesign and optimise databases</li> <li>• Plan and manage development processes involving many geographically separated project participants</li> <li>• Plan and implement testing for large IT systems</li> </ul> <p><i>Competencies</i></p> <p>The student can:</p>

- Identify links between applied theory, methods and technology and reflect on their suitability in various situations
- Engage in professional collaboration to develop large systems by applying common methods and technologies
- Familiarise themselves with new technologies and standards for handling integration between systems,
- Through practice, develop their own competency profile from a primarily back-end developer profile to performing tasks as a system architect
- Handle the establishment and realisation of a business and technologically appropriate architecture for large systems.

**Assessment:**

The examination is an oral and written examination with an external co-examiner. A combined mark is given based on the 7-point scale for the written project and the oral presentation

**About the examination:**

The examination can only take place after the student has passed all other educational elements. For more see the Manual for the Bachelor Project for the study programme.

### 5.4.1. Importance of Verbal and Writing Skills

The students' spelling and communication skills are included in the assessment of the bachelor project, regardless of the language in which the bachelor project has been written. Nevertheless, the project's content and relevance are decisive, cf. the ministerial order on examinations, section 35, subsection 4.

### 5.5. Aids during Examination

In general, all forms of aid are allowed during examinations, unless stated otherwise in the examinations catalogue for particular programme.

### 5.6. Examination Language

The examination language is the same as the language of instruction, i.e. if the language of instruction is English, the examination will be conducted in English. Where the examination language is Danish, the student may choose to conduct the examination in Swedish or Norwegian, unless the purpose of the examination is to demonstrate the student's proficiency in Danish, cf. the ministerial order on examinations, section 18.

## 6. OTHER RULES

## 6.1. Credit Transfer

Passed programme elements are equivalent to similar programme elements taken at other educational institutions offering this programme.

Students are obliged to inform us of any completed educational elements from another Danish or foreign higher education programme or any jobs which are likely to provide credit.

Cphbusiness approves credit, in each instance, on the basis of completed programme elements and any jobs which meet the objectives of the subjects, the educational part and the internship parts.

The decision is based on an academic assessment.

For prior credit approval of studies in Denmark or abroad, students are required to document each approved and completed programme element on the completion of these studies.

In connection with applying for prior credit approval, the students give Cphbusiness permission to obtain the necessary information after the student's completion.

Following approval according to the above, the programme element is deemed to be passed if it was passed according to the rules of the programme in question.

## 6.2. Change of study programme

Change of study programme at the same or another educational institution is regulated by the rules of the study programme receiving the student.

Changing to the same study programme at another institution cannot take place until the student has passed examinations corresponding to the first year of study at the programme receiving the student unless special circumstances apply, cf. the ministerial order on admission and enrolment section 36, subsection 2. A change of study programme can only take place if the the receiving institution has spaces available at the relevant level of the study programme.

## 6.3. Exemptions from the Curriculum

Under special circumstances, Cphbusiness is entitled to grant exemptions from rules stipulated in this curriculum. Students 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.