Curriculum for the Academy Profession Degree Programme in Service Engineering – Heating, Water and Sanitation
Spring 2015

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TEKNOLOGI

1. Table of contents

Please note: This is a translation of the Danish curriculum for the Academy Profession Degree Programme in Service Engineering, which is currently only taught in Danish at UCN. The purpose of this translation is to inform non-Danish speakers of the contents of the Danish curriculum. Only the Danish curriculum is legally valid.

2. Curriculum framework

The objective of the academy profession degree programme in service engineering is to qualify the graduates to independently handle the planning, installation and operation of systems within electrical power engineering or gas and heating, water and sanitation. The Academy Profession Degree Programme in Service Engineering gives graduates the right to bear the title AP Graduate in Service Engineering. The Danish title is Installatør AK. The study programme is offered in accordance with level 5 of the Qualifications Framework for Lifelong Learning. This is the national section of the curriculum for the Academy Profession Degree Programme in Service Engineering, under Ministerial Order no. 791 of 20 August 2009. Link to the Ministerial Order (in Danish): https://www.retsinformation.dk/forms/R0710.aspx?id=126478

The service engineering programme has two fields of study: Electrical power engineering and Heating, water and sanitation, both worth 120 ECTS credits.
Applicants are admitted to the study programme in accordance with schedule 1, "Admission requirements for admission to academy profession degree programmes..." in Ministerial Order no. 223 of 11 March 2014 on admission to academy profession degree programmes and professional bachelor's degree programmes (the Admission Order). Link to the Ministerial Order (in Danish):
https://www.retsinformation.dk/forms/R0710.aspx?id=162040

The curriculum for the academy profession degree programme in service engineering is drawn up by the network of approved providers of the programme, according to the guidelines in the above and the following ministerial orders:

- Consolidating act no. 214 of 27 February 2013 on business academies of professional higher education (Danish title: Bekendtgørelse af lov om erhvervsakademier for videregående uddannelser)

- Consolidating act no. 467 of 8 May 2013 on academy profession programmes and professional bachelor programmes (Danish title: Bekendtgørelse af lov om erhvervsakademiuddannelser og professionsbacheloruddannelser)

- Ministerial Order no. 1521 of 16 December 2013 on academy profession programmes and professional bachelor programmes (the Programme Order) (Danish title: Bekendtgørelse om erhvervsakademiuddannelser og professionsbacheloruddannelser (LEP-bekendtgørelsen)

- Ministerial Order no. 1519 of 16 December 2013 on examinations on professionally oriented higher education programmes (the Exam Order) (Danish title: Bekendtgørelse om prøver i erhvervsrettede videregående uddannelser)

- Ministerial Order no. 262 of 20 March 2007 on the grading scale and other forms of assessment (Danish title: Bekendtgørelse om karakterskala og anden bedømmelse)

Reading instructions

This Curriculum for the service engineering study programme provides the basic rules for the study programme, a description of the different educational components (subjects) and the learning outcomes of the programme:

- The overall core areas for the fields of study
- The compulsory educational components that are common to the two fields of study
- The compulsory educational components that are specific to the two fields of study
- Internship
- Exams
- Institutional section, including elective educational components

2.1 The two fields of study

Electrical power engineering

1st year of study		**2nd year of study**	
	ECTS		**ECTS**
Installation technology		**The company**	
Linguistic communication	5	Quality, safety and environment	5
Technical documentation	5		
Mathematics	5	Organisation and management	5
Information technology	5		
The company		**Technology and project design; electrical power engineering**	
Project management and works contract management	5	Building installations (2)	5
Financial situation and business activities	5	Electrical supply systems	5
Technology and project design; electrical power engineering		**Elective educational components**	15
Technical calculation	5		
Building installations (1)	15	**Internship**	15
Building automation	5		
Automation for small machinery and plant	5	**Final exam project**	10
	60		**60**

Heating, water and sanitation

1st year of study		**2nd year of study**	
	ECTS		**ECTS**
Installation technology		**The company**	
Linguistic communication	5	Quality, safety and environment	5
Technical documentation	5		
Mathematics	5	Organisation and management	5
Information technology	5		
The company		**Technology and project design; heating, water and sanitation**	

1st year of study		2nd year of study	
Project management and works contract management	5	Indoor climate, ventilation (2)	5
Financial situation and business activities	5	Gas technology (1)	5
Technology and project design; heating, water and sanitation		**Elective educational components**	15
Technical calculation	5		
Indoor climate, ventilation (1)	5	**Internship**	15
Heating	10		
Sanitation	10	**Final exam project**	10
	60		**60**

3. Curriculum for the Academy Profession Degree Programme in Service Engineering – Heating, Water and Sanitation – National section

4. Programme core areas and ECTS credits

The programme has three core areas worth a total of 80 ECTS in each field of study:

- Installation technology (20 ECTS)
- The company (20 ECTS)
- Technology and project design, electrical power engineering (40 ECTS)
- Technology and project design, heating, water and sanitation (40 ECTS))

4.1 Installation technology 20 ECTS

Including linguistic communication, technical documentation, mathematics and information technology.

Knowledge
The students should have acquired knowledge about

- theory and methods of mathematical calculations;
- applicable laws and regulations; and
- standards for technical documentation.

Skills
The students should be able to

- communicate practical issues and solution proposals to users and partners in Danish and at least one foreign language;
- use up-to-date and relevant tools for communication and documentation; and
- measure and evaluate data in relation to technical issues.

Competences
The students should be able to

- acquire new knowledge, skills and competences in respect of the profession.

4.2 The company 20 ECTS

Including project management and works contract management, financial situation and business activities, organisation and management as well as quality, safety and environment.

Knowledge
The students should have acquired knowledge about

- central concepts and methods within works contract management;
- relevant tools and practice in connection with running a business; and
- applicable laws and regulations.

Skills
The students should be able to

- prepare tender documents and sales material as well as calculate and make tenders;
- handle and manage installation tasks, projects and works contracts;
- take a professional approach to discipline-specific and interdisciplinary collaboration;
- conduct management tasks and use up-to-date and relevant management tools as well as handle authorisation responsibilities in connection with project design according to applicable law, rules and quality requirements; and
- run and operate a service engineering business.

Competences
The students should be able to

- set up or take over as well as run a service engineering business;
- be part of the management functions of a service engineering business as well as assume the responsibilities of manager; and
- handle the role of project manager.

4.3 Technology and project design; electrical power engineering (40 ECTS)

Including technical calculation of electricity supply systems, building installations as well as building automation and automation for minor machinery and plant.

Knowledge
The students should have acquired knowledge about

- the theory of the electrical power engineering area and its significance to the function and energy effects of installations and systems at a specialised level;
- implementation of projects in connection with electrics and small automatic systems; and
- electrical installations and installation works on electrics.

Skills
The students should be able to

- plan, design, document and implement electrical engineering projects and works contracts concerning electrical installations, building automation and small automatic systems;
- assess system forms as well as choose relevant, up-to-date and financially advantageous solutions; and
- in connection with electrical engineering projects and works contracts, independently assess and implement practical electrical engineering solutions to problems, in consideration of safety, energy and environmental conditions.

Competences
The students should be able to

- design, plan and manage the execution of electrical engineering installations, building automation and small automatic systems, using state-of-the-art technology; and
- handle situations of a development-oriented nature within the electrical engineering area.

4.4 Technology and project design; heating, water and sanitation (40 ECTS)

Including technical calculation of energy supply systems as well as building installations for indoor climate, water, sanitation and gas.

Knowledge
The students should have acquired knowledge about

- the theory of the heating, water and sanitation area and its significance to installation technology in gas and heating, water and sanitation systems;
- project design of gas and heating, water and sanitation systems at a user-oriented level; and
- heating, water and sanitation installations and installation works on supply and production systems.

Skills
The students should be able to

- plan, design, document and implement heating, water and sanitation projects and works contracts;
- assess system forms as well as choose relevant, up-to-date and financially advantageous solutions; and
- in connection with heating, water and sanitation projects and works contracts, independently assess and implement practical heating, water and sanitation solutions to problems, in consideration of safety, energy and environmental conditions.

Competences
The students should be able to

- design, plan and manage the implementation of gas and heating, water and sanitation installations, using state-of-the-art technology; and
- handle situations of a development-oriented nature within the heating, water and sanitation area.

5. Compulsory educational components within the core programme areas

There is a total of 14 compulsory educational components distributed on the 1st and 2nd years of study within the three core areas for each field of study. See an overview of the exams in chapter 5, *Number of exams in the compulsory educational components* and chapter 8 *Overview of exams*.

Compulsory educational components for Electrical power engineering and Heating, water and sanitation together:

- Linguistic communication (5 ECTS)
- Technical documentation (5 ECTS)
- Mathematics (5 ECTS)
- Information technology (5 ECTS)
- Project management and works contract management (5 ECTS)
- Financial situation and business activities (5 ECTS)
- Quality, safety and environment (5 ECTS)
- Organisation and Management (5 ECTS)

Compulsory educational components for Electrical power engineering:

- Technical calculation (5 ECTS)
- Building installations (1) (5 ECTS)
- Building automation (5 ECTS)
- Automation for small machinery and plant (5 ECTS)
- Building installations (2) (5 ECTS)
- Electricity supply systems (5 ECTS)

Compulsory educational components for Heating, water and sanitation:

- Technical calculation (5 ECTS)
- Indoor climate/ventilation (1) (5 ECTS)
- Indoor climate/ventilation (2) (5 ECTS)
- Heating (10 ECTS)
- Sanitation (10 ECTS)
- Gas technology (1) (5 ECTS)

5.1 Linguistic communication (5 ECTS)

Contents

Writing business letters in Danish and a foreign language
Conversations and discussions in a foreign language
Reading and understanding manuals and data sheets in a foreign language
Presentation of a subject to an assembly

Knowledge

The students should have acquired knowledge about written and oral communication

- within technical and business-related subjects;
- in respect of Danish and international cooperation partners; and
- with a view to managerial communication and presentation technique.

Skills
The students should be able to

- understand, communicate and explain technical instructions to stakeholders; and
- present suggestions and solutions to stakeholders, in Danish and at least one foreign language.

Competences
The students should be able to

- cooperate with Danish and international stakeholders;
- act within their field in Danish and international cultures; and
- ensure effective communication in their own company or department.

5.2 Technical documentation (5 ECTS)

Contents

Software for drawing and documenting technical installations
Standards for technical documentation
Updating of standards

Knowledge
The students should have acquired knowledge about

- documentation of installations
- preparation of project reports, dissertations and manuals; and
- rules and standards.

Skills
The students should be able to

- prepare up-to-date documentation of work; and
- structure and organise knowledge and data.

Competences
The students should be able to

- handle and ensure correct technical documentation.

5.3 Mathematics (5 ECTS)

Contents
Basic mathematics and physics
Equations
Units and prefix
Trigonometry
Calculator and spreadsheets

Knowledge

The students should have acquired knowledge about

- basic relevant mathematical tools; and
- basic relevant natural science tools.

Skills

The students should be able to

- use basic relevant mathematical tools; and
- use relevant natural science tools.

Competences

The students should be able to

- choose relevant mathematical and natural science tools and make technical calculations within the core areas.

5.4 Information technology (5 ECTS)

Contents

Software for calculation of installations
Updating of software and methods
Internet

Knowledge

The students should have acquired knowledge about

- relevant and up-to-date IT software; and
- relevant and up-to-date calculation software.

Skills

The students should be able to

- use relevant and up-to-date IT software; and
- use relevant and up-to-date calculation software.

Competences

The students should be able to

- use software to calculate and dimension installations; and
- analyse technical systems using relevant software.

5.5 Project management and works contract management (5 ECTS)

Contents

Plan and organise as well as manage and control tasks, projects and works contracts
Prepare tender and sales material as well as calculation
Tendering and works contract law

Knowledge

The students should have acquired knowledge about

- the project and works contract manager's function, tasks and role as well as responsibility in carrying out projects and works contracts;
- relevant laws and regulations as well as responsibilities, commitments and rights in connection with works contracts;
- modern calculation methods and up-to-date price calculation programmes;
- procedures and rules in connection with tendering and contract formation; and
- project models and control processes as well as the methods and tools of the project work form and group-dynamical work processes.
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Skills

The students should be able to

- build up a project organisation, handle cooperation processes as well as establish and communicate interdisciplinary cooperation;
- use relevant tools for planning, control and implementation as well as documentation of projects;
- prepare tender and sales materials;
- calculate price and make offers; and
- plan, organise and manage day-to-day work tasks and major works contracts.

Competences

The students should be able to

- manage the role of advisor as well as project or works contract manager; and
- manage installation technology projects and works contracts as well as day-to-day tasks in a service engineering business.

5.6 Financial situation and business activities (5 ECTS)

Contents

Establish and run a business
Business economics and management
Relevant business law topics

Knowledge

The students should have acquired knowledge about

- establishment, building up and taking over of a business as well as development and creation of idea and a business foundation;
- central methods and practice within business activities;
- purchasing and material management, control of work assignments and staff as well as control of orders, delivery and sales;

- accounts and budgets as well as financial analysis;
- financial and administrative management of business, assignments and projects as well as works contracts; and
- the central laws and regulations for the relationship between a service engineering business and its stakeholders.

Skills
The students should be able to

- establish, take over and build up a business as well as plan, manage and organise day-to-day operations;
- prepare an account, set up budgets as well as assess investment needs and finances;
- manage and administer the financial situation of a business and a works contract;
- use relevant analysis tools for finances, operation and management;
- create a relevant basis for decisions and convert it into specific action plans for finances and operation; and
- prepare business plans.

Competences
The students should be able to

- establish, take over and run a service engineering business; and
- handle management tasks in connection with control of operations and finances.

5.7 Quality, safety and environment (5 ECTS)

Contents
Quality and quality management
Environment and environmental management
Work environment, safety and job satisfaction
Relevant laws and regulations for environment and work environment

Knowledge
The students should have acquired knowledge about

- occupational diseases and trade-relevant work environment problems as well as environmental considerations and environmental policy;
- applicable legislation and industry requirements concerning quality, safety, work environment and environment; and
- relevant control systems to secure safety and work environment.

Skills
The students should be able to

- analyse and assess work environment and environmental considerations as well as quality requirements;
- in accordance with applicable legislation, rules and industry requirements, develop, build up, implement, maintain and use relevant control systems to secure quality, safety and work environment as well as environment; and
- handle an authorisation responsibility as well as quality assure and draw up maintenance plan for installation, project and works contract.

Competences
The students should be able to

- undertake management tasks that include responsibility for work environment, environment and quality; and
- administer a managerial responsibility conditioned on authorisation

5.8 Organisation and management (5 ECTS)

Contents
Establishment and building up of organisations as well as organisation development
Management of organisations, systems, cultures and staff as well as development processes
Labour and employment law as well as relevant elements from business law

Knowledge
The students should have acquired knowledge about

- business forms, organisation models, innovation and organisation development, the formal and informal organisations of the workplace, organisation of staff as well as building up of staff groups;
- strategic management and the manager's functions, tasks and roles, relevant management tools, management and cooperation, general occupational psychology as well as change and development processes; and
- the Danish labour market model and employment law.

Skills
The students should be able to

- organise company and workplace as well as establish, build up and develop organisations and staff;
- handle organisational models and cultures as well as social and interpersonal relations;
- work on strategic management and use relevant management tools in a given situation as well as handle change, development and implementation processes; and
- manage a staff, ensure job satisfaction and motivation, attract and retain staff as well as handle co-operative and staff relationships according to applicable laws and regulations.

Competences
The students should be able to

- be part of the management functions of a service engineering business as well as assume staff responsibility; and
- take part in the development of organisation and staff as well as handle development, change and implementation processes in connection with innovation.

5.9 Technical calculation (5 ECTS)

Contents

Basic calculation of electric circuits and electric machines

Knowledge
The students should have acquired knowledge about

- the theory of electrical power engineering and its significance to the function of electrical installations and systems;
- the passive components of the electrical power engineering area and their use;
- methods and tools for calculation of electric circuits; and
- the function and practical construction of electric machines at a basic level.

Skills
The students should be able to

- make calculations of common electric circuits built up of passive components; and
- assess and communicate practice-related issues within the theory of the electrical power engineering area as well as set up possible solutions in relation to the theory.

Competences
The students should be able to

- acquire skills and new knowledge in a structured context in relation to the basic theory of the electrical power engineering area.

5.10 Building installations (1) (15 ECTS)

Contents
Planning, design, execution, operation, inspection and maintenance of electrical building installations

Knowledge
The students should have acquired knowledge about

- the structure of electrical building installations, components used and their function;
- relevant laws and regulations within the area; and
- concepts and methods as well as be able to reflect on the use of these in relation to the area.

Skills
The students should be able to

- plan, design and document electrical building installations;
- assess system forms as well as choose relevant, up-to-date and financially advantageous solutions within the area; and
- assess and implement practice-related solutions within the area.

Competences
The students should be able to

- design, plan and manage the execution of electrical building installations, using state-of-the-art technology; and
- handle development-oriented situations in relation to the area.

5.11 Building automation (5 ECTS)

Contents
Planning, design and execution of building automation using technologies within Intelligent Building Installations (IBI) and Building Management Systems (BMS).

Knowledge
The students should have acquired knowledge about

- electric and electronic systems for control and regulation of the energy supply of buildings;
- components, their use and function; and
- concepts and methods as well as be able to reflect on the use of these in relation to the area.

Skills
The students should be able to

- assess system forms as well as choose relevant, up-to-date and financially advantageous solutions within the area; and
- independently assess and implement practical solutions to problems within the area, considering power engineering and environmental conditions.

Competences
The students should be able to

- take a professional approach to discipline-specific and interdisciplinary collaboration; and
- handle development-oriented situations in relation to the area.

5.12 Automation for small machinery and plant (5 ECTS)

Contents
Automation and electrical installations on small machinery and plant

Knowledge
The students should have acquired knowledge about

- electric and electronic systems for controlling small machinery and plant, components, their use and function; and
- applicable standards within the area.

Skills
The students should be able to

- assess system forms as well as choose relevant, up-to-date and financially advantageous solutions within the area; and
- independently assess and implement practical solutions to problems within the area, considering power engineering and environmental conditions.

Competences
The students should be able to

- take a professional approach to discipline-specific and interdisciplinary collaboration; and
- handle installation-technology situations in relation to the area.

5.13 Building installations (2) (5 ECTS)

Contents

Planning, design, execution, operation, inspection and maintenance of electrical building installations

Knowledge
The students should have acquired knowledge about

- the structure of electrical building installations, components used and their function;
- relevant laws and regulations within the area; and
- concepts and methods as well as be able to reflect on the use of these in relation to the area.

Skills
The students should be able to

- plan, design, document, commission and service electrical building installations;
- assess system forms as well as choose relevant, up-to-date and financially advantageous solutions within the area; and
- independently assess and implement practical solutions to problems within the area, considering power engineering and environmental conditions.

Competences
The students should be able to

- design, plan and manage the execution of electrical building installations, using state-of-the-art technology; and
- handle development-oriented situations in relation to the area.

5.14 Electricity supply systems (5 ECTS)

Contents

Planning, design, operation, inspection and maintenance of electricity supply systems in the medium-voltage and low-voltage distribution networks.

Knowledge
The students should have acquired knowledge about

- the structure, components and function of the electricity supply system;
- applicable laws and regulations within the area; and
- concepts and methods as well as be able to reflect on the use of these in relation to the area.

Skills
The students should be able to

- plan, design, document, commission and service electricity supply systems; and
- assess and implement practice-related solutions within the area.

Competences
The students should be able to

- take a professional approach to discipline-specific and interdisciplinary collaboration within the area; and
- handle development-oriented situations in relation to the area.

5.15 Technical calculation (5 ECTS)

Contents

Technical calculation of heating, water and sanitation systems using relevant and up-to-date mathematical and physical disciplines and tools.

Knowledge
The students should have acquired knowledge about

- mathematical and physical methods and tools for calculation of energy supply systems and building installations.

Skills
The students should be able to

- construct technical systems by means of mathematical and physical disciplines and tools.

Competences
The students should be able to

- analyse and construct technical systems by means of relevant and up-to-date mathematical and physical disciplines and tools.

5.16 Indoor climate/ventilation (1) (5 ECTS)

Contents
General theory on ventilation principles and plant types, including mechanical exhaust and injection as well as CAV and VAV

Thermal and atmospheric indoor climate Volume flows and required supply of outdoor air
Fire protection of ventilating plant Regulations, laws and directions concerning ventilating plant Air distribution systems, including pressure drop calculations, fans and preadjustment, air currents in closed spaces and SEL values

Knowledge
The students should have acquired knowledge about

- construction of different types of ventilating plant;
- dimensioning and mode of operation within housing, institution and trade;
- the significance of the area and its influence on other adjacent professional groups; and
- regulations, laws and directions concerning ventilating plant.

Skills
The students should be able to

- design, dimension and establish indoor climate systems; and
- assess installation forms and choose relevant and up-to date solutions.

Competences
The students should be able to

- design and plan the execution of works on indoor climate systems; and
- calculate the design air volumes and plan ducting systems

5.17 Indoor climate/ventilation (2) (5 ECTS)

Contents

General theory on sound and sound calculations in ventilating plant
Air treatment, change of state, heating, cooling and humidification IX diagrams and internal/external loads for plant

Construction of ventilation devices, including throttles, filters, heating and cooling surfaces
Energy consumption for running ventilating plant Safety measures in ventilating plant, fire, smoke and frost Control and regulation theory Operations and maintenance procedures for ventilating plant, including measurement theory and adjustment

Workflow diagrams, functional descriptions and industrial systems

Knowledge
The students should have acquired knowledge about

- sounds in ventilating plant;
- changes of state of air;
- ventilation units with appurtenant automation;
- energy calculations; and
- new know-how in the area and be able to use new technologies.

Skills
The students should be able to

- plan and document a complete ventilating plant according to applicable regulations and considering functional, indoor-climate and operational requirements for finance, energy savings and environment;

- communicate their knowledge of the area to users, clients, architects, advisors and contractors with a view to giving advice, manage and plan the execution of works in the area; and
- prepare operation and maintenance procedures.

Competences
The students should be able to

- design and plan indoor climate/ventilating plant with accessory automation, in consideration of acoustics, adjustment and energy consumption;
- assess, advice on and make decisions in accordance with applicable laws, regulations and standards for indoor climate/ventilating plant; and
- contribute to influencing developments in the area so that focus will be on improved indoor climate, comfort and energy optimisation now and in future.

5.18 Heating (10 ECTS)

Contents

The heat loss and energy needs of buildings Heating systems, including producing, distributing and emitting systems, chimneys, pumps, regulation and insulation

Knowledge

The students should have acquired knowledge about

- the heat loss and energy needs of buildings; and
- dimensioning as well as establishment and handling of operations and maintenance of heating systems with appurtenant automation.

Skills

The students should be able to

- calculate and document the heat loss and energy needs of buildings;
- design and dimension heating systems;
- establish and handle operations and maintenance of heating systems with appurtenant automation; and
- assess installation forms and choose relevant and up-to date solutions.

Competences

The students should be able to

- design and plan the execution of works on heating systems with appurtenant automation; and
- assess, advice on and make decisions in accordance with applicable laws, regulations and standards for heating systems with appurtenant automation.

5.19 Sanitation (10 ECTS)

Contents

Drains; Vented and unvented waste water installations, rainwater and drain water installations, pumping units, materials, corrosion, fire protection, noise

Water; Utility water installations, installation items, hot water cylinders, circulation, insulation, pressure boosting, water treatment, materials, corrosion, noise

Knowledge

The students should have acquired knowledge about

- dimensioning, establishment and handling of operation and maintenance of sanitary supply systems.

Skills

The students should be able to

- plan and dimension sanitary supply systems;
- establish and handle operation and maintenance of sanitary supply systems; and
- assess installation forms and choose relevant and up-to date solutions.

Competences
The students should be able to

- design and plan the execution of works on sanitary supply systems; and
- assess, advice on and make decisions in accordance with applicable laws, regulations and standards for sanitary supply systems.

5.20 Gas technology (1) (5 ECTS)

Contents
Installations at the ordinary consumer's as well as minor LPG gas installations

Knowledge
The students should have acquired knowledge about

- authority provisions and regulations, authorisations and certificates for gas technology systems;
- the properties and combustion of gas, gas supply systems, installations and components in earth and building;
- gas-consuming appliances and boilers, ventilation and flue systems; and
- dimensioning and establishment of gas technology systems with associate automation.

Skills
The students should be able to

- plan, dimension and establish common gas technology systems with associate automation; and
- assess installation forms and choose relevant, safety-related and up-to date solutions.

Competences
The students should be able to

- design and plan the execution of works on common gas technology systems with appurtenant automation; and
- assess, advice on and make decisions in accordance with applicable laws, regulations and standards for ordinary gas technology systems with appurtenant automation.

6. Number of exams in the compulsory educational components

The compulsory educational components of the 1st year of study are concluded with one common exam. The compulsory educational components of the 3rd semester are concluded with one common exam. See an overview of the study programme exams in chapter 8 "*Overview of exams*".

Relation between core areas and compulsory educational components:

Electrical power engineering	1st year of study	2nd year of study (3rd semester)	Total
Core areas	***Compulsory educational components***		
Installation technology	Linguistic communication (5 ECTS) Technical documentation (5 ECTS) Mathematics (5 ECTS) Information technology (5 ECTS)		**20 ECTS**
Business	Project management and works contract management (5 ECTS) Financial situation and business activities (5 ECTS)	Quality, safety and environment (5 ECTS) Organisation and Management (5 ECTS)	**20 ECTS**
Technology and project design	Technical calculation (5 ECTS) Building installations (1) (5 ECTS) Building automation (5 ECTS) Automation for small machinery and plant (5 ECTS)	Building installations (2) (5 ECTS) Electricity supply systems (5 ECTS)	**40 ECTS**
	60 ECTS	**20 ECTS**	**80 ECTS**

Heating, water and sanitation	1st year of study	2nd year of study (3rd semester)	Total
Core areas	***Compulsory educational components***		
Installation technology	Linguistic communication (5 ECTS) Technical documentation (5 ECTS) Mathematics (5 ECTS) Information technology (5 ECTS)		**20 ECTS**
Business	Project management and works contract management (5 ECTS) Financial situation and business activities (5 ECTS)	Quality, safety and environment (5 ECTS) Organisation and management (5 ECTS)	**20 ECTS**
Technology and project design	Technical calculation (5 ECTS) Indoor climate/ventilation (1) (5 ECTS) Heating (10 ECTS) Sanitation (10 ECTS)	Gas technology (1) (5 ECTS) Indoor climate/ventilation (2) (5 ECTS)	**40 ECTS**
	60 ECTS	**20 ECTS**	**80 ECTS**

7. Internship

ECTS credits

The internship is worth 15 ECTS credits.

Contents

During the internship, students work with professionally relevant issues and acquire knowledge of relevant job functions. The students will be working with one or more private or public companies during the internship.

As far as possible, the internship must be with a company within the professional field (such as consultancy, installation or energy optimisation) chosen by the students, in order to form the basis of a topic for the final exam project.

The internship must be completed according to the practises of the profession; contributing – together with the other components of the programme – to the students developing professional competences while acquiring knowledge of jobs that a service engineering graduate may find in a company.

Knowledge

The students should have acquired knowledge about

- the tasks related to the profession as well as methods, tools and instruments.

Skills

The students should be able to

- independently assess and undertake relevant, practical problems included in the learning agreement made with the internship company.

Competences

The students should be able to

- take a professional approach to dealing with relevant situations and problems in the selected specialisation.

The internship is concluded with one exam.

The learning outcomes for the educational component are identical to the learning outcomes for the examination.

See the institutional section of this Curriculum for exam form, exam procedure, etc.

8. Final exam project

ECTS credits

The final exam project is worth 10 ECTS credits.

Final exam project requirements

The final exam project examination is an external exam that, alongside the internship exam and the other exams of the programme, must document that the goals for the learning outcomes of the programme have been achieved.

The exam must document an understanding of practice and centrally applied methods in relation to a practice-based problem based on a specific assignment or project within the service engineering field. The problem statement, which must be central to the profession, is formulated by the student, perhaps in collaboration with a company. The educational institution must approve the problem statement and research question.

The exam is made up of a project and an oral exam. One individual overall grade is given. The students will be assigned one or more institutional supervisors and may be assigned an external supervisor in connection with the preparation of the final exam project.

The final exam project may not exceed 45,000 characters including spaces. If two or more students prepare the final exam project together, the maximum number of characters is increased to 55,000 including spaces. The number of pages is exclusive of cover page, table of contents, graphics and reference list. Appendices are not part of the assessment.

Writing and spelling skills

Writing and spelling skills form part of the final exam project. The assessment is an expression of an overall assessment of the discipline-specific content as well as the students' writing and spelling skills. Students may apply for exemption from the requirement that writing and spelling skills form part of the assessment criteria if the application is supported by documentary evidence of a specific, relevant physical or mental impairment. The application is to be submitted to the study programme and directed to the attention of the programme director not later than four weeks before the exam is to be held.

Learning outcomes

The final exam project must substantiate that the students have reached the final level of the programme, cf. Annex 1 of Ministerial Order no. 791 of 20 August 2009 on the Academy Profession Degree Programme in Service Engineering: Goals for learning outcomes for the academy profession degree in service engineering.

Assessment

The examination is externally assessed and will be graded according to the 7-point grading scale. The exam is made up of a project and an oral examination. One individual overall grade is given. The exam cannot take place until the internship exam and the other exams of the study programme have been passed. See the institutional section of this Curriculum for exam form, exam procedure, etc.

9. Overview of exams

Overview of all examinations and their order:

Exam	105 ECTS credits distributed across the exams	Assessment
1. 1st-year exam	60	7-point grading scale
2. 3rd-semester exam	20	7-point grading scale
3. Internship exam	15	7-point grading scale
4. Final exam project	10	7-point grading scale

Each exam project must be submitted electronically in PDF format as a single file to the educational institution conducting the examination. The educational institution conducting the examination will make sure that all external examiners will have access to the projects in question when they have been submitted.

10. Credit transfer

Passed educational components are equivalent to the corresponding educational components offered by other educational institutions that offer the programme.

The students must provide information on completed educational components from another Danish or international further education and on employment assumed to result in credit transfer. The educational institution will grant transfer credit in each individual case based on completed/passed educational components and occupations that match course units, parts of the study programme or parts of the internship. The decision is based on a professional assessment.

Pre-approved credit transfer

The students can apply for pre-approved credit transfer. Upon pre-approval of a study period in Denmark or abroad the students must, after conclusion of their study, document the completed educational components of the approved study. When applying for pre-approval, students must consent to allow the educational institution to collect any required information upon the students' completion of the study-abroad period.

For the final approval of pre-approved credit transfer, the educational component is considered completed if it is passed in accordance with the regulations applying to the study programme.

11. Exemption

The institution may grant exemption from the rules in this institutional section of the curriculum that are laid down solely by the institution, when found substantiated in exceptional circumstances. The educational institutions co-operate on a uniform exemption practice.

12. Effective date and transition regulations

This national section of the curriculum enters into force on 1 August 2014 with effect for all students who are and will be registered for the study programme on said date or thereafter.

The national section of the curriculum of September 2013 is revoked with effect from 31 July 2014. However, exams started before 1 August 2014 will be concluded according to this national section of the curriculum.

13. Curriculum for the Academy Profession Degree Programme in Service Engineering – Heating, Water and Sanitation – Institutional section

The institutional section of this Curriculum applies to the Academy Profession Degree Programme – Heating, Water and Sanitation at University College of Northern Denmark.

14. Distribution of components

The compulsory educational components mentioned in the national section of this Curriculum and the elective educational components mentioned in the institutional section are distributed across the four semesters as follows:

Service Engineering – Heating, Water and Sanitation **Distribution of components**		**ECTS**				**Total**
		1st semester	**2nd semester**	**3rd semester**	**4th semester**	
Basic service installation components		**12**	**8**			**20**
Linguistic communication		*3*	*2*			***5***
Technical documentation		*3*	*2*			***5***
Technical mathematics and physics		*3*	*2*			***5***
Information technology		*3*	*2*			***5***
Business-related components		**5**	**5**	**10**		**20**
Project management and works contract management		*3*	*2*			***5***
Financial situation and business activities		*2*	*3*			***5***
Organisation and management				*5*		***5***
Quality, safety and environment				*5*		***5***
Technology and project design within heating, water and sanitation		**13**	**17**	**10**		**40**
Sanitation, including calculation	*Drainage*	*3*	*2*			***5***
	Water installations	*3*	*3*			***6***
Heating, including calculation		*5*	*7*			***12***

Curriculum for the Academy Profession Degree Programme in Service Engineering – Heating, Water and Sanitation

Service Engineering – Heating, Water and Sanitation **Distribution of components**	**ECTS**				**Total**
	1st semester	**2nd semester**	**3rd semester**	**4th semester**	
Indoor climate, ventilation (1), including calculation	*2*	*5*			***7***
Indoor climate, ventilation (2)			*5*		***5***
Gas technology (1)			*5*		***5***
Electives			**10**	**5**	**15**
Internship				**15**	**15**
Final exam project				**10**	**10**
Total	**30**	**30**	**30**	**30**	**120**

Order of examinations

Examination order	**Exam**	**120 ECTS credits distributed across exams**	**Internal/ external**	**Assessment**
2nd semester	Compulsory educational components Linguistic communication Technical documentation Mathematics Information technology Project management and works contract management Financial situation and business activities Technical calculation Indoor climate, ventilation (1) Heating Sanitation	60	**Externally assessed**	7-point grading scale
3rd semester	Compulsory educational components Quality, safety and environment Organisation and management	20	Internally assessed	7-point grading scale

	Indoor climate, ventilation (2) Gas technology (1)			
3rd semester	Elective exam/Gas technology (2) [2]	3	Internally assessed	7-point grading scale
3rd semester	Elective exam/Gas fault finding	7	**Externally assessed**	Pass/fail
4th semester	Elective exam[1]	5	Internally assessed	7-point grading scale
4th semester	Internship exam	15	Internally assessed	7-point grading scale
4th semester	Final exam project	10	**Externally assessed**	7-point grading scale

Information about the time and place for each exam can be found on eCampus.

15. Framework and criteria for programme exams

16. 1st-year exam

Exam attendance prerequisites, including obligation to participate[2]

The students must meet the following requirements in order to sit the exam:

- Projects 1a and 1b must be completed
- The written project that makes up both the assessment basis and the examination basis must meet the formal requirements stated below, and be submitted in due time according to the exam plan, which can be found on eCampus.

If the written project which makes up the written part of the exam has not been submitted correctly and in due time, the students cannot sit the exam and they will be considered to have made an exam attempt.

Examination procedure

The exam is an externally assessed, oral, individual exam based on a written project which consists partly of group work (the proposal phase), partly of individual work (the project phase) and is assessed according to the 7-point grading scale.

The exam must document that the student has achieved the learning goals that are fixed for the first academic year. The exam is made up of a project and an oral exam. One individual overall grade is given based on an overall evaluation of the written and oral performance.

The exam is worth 60 ECTS credits.

1 The elective components and the related examinations are described in the institutional section of this Curriculum.

The project is presented by the student; duration a maximum of 15 minutes. This is followed by an examination of the student. Exam duration is 30 minutes per student, including time for deliberations.

Formal written project requirements

The project, which constitutes the written part of the exam, must include:

- Cover page with title
- Table of contents
- Introduction including presentation of problem statement, research question and approaches
- Background, theory, method, analysis – including description and substantiation of the choice of empirical data, if any[3], for answering the problem statement and research question
- Conclusion (remember that the introduction and the conclusion must relate to each other). In principle, it should be possible to understand the introduction and conclusion without reading the background and analysis chapters)
- Discussion in which the students place their research and findings in a wider context.
- Reference list (including all sources referred to in the project)
- Appendices (include only appendices central to the report). All appendices must be arranged and numbered according to topic in a list of appendices

The written project for the 1st-year exam may not exceed 45,000 characters including spaces and graphics. Appendices will not be assessed.

Drawings are not considered as appendices.

Digital submission

Each exam project must be submitted electronically in PDF format as a single file to the educational institution conducting the examination. The educational institution conducting the examination will make sure that all external examiners will have access to the projects in question when they have been submitted.

Assessment criteria

The assessment criteria for the exam are the same as the learning outcomes for the compulsory educational components to be completed after the first year of study.

The learning outcomes are described in the national section of this Curriculum.

Scheduled time

The exam takes place at the end of the 2nd semester. Further information about time and place as well as submission of the written project can be found on eCampus.

[3] *"Empirical material is material that is subject to investigation and which can be referred to (observations, data, statements, texts, sources)." Rienecker L. & Jørgensen P.S. 2005 Den gode opgave – opgaveskrivning på videregående uddannelser (The good paper : a handbook for writing papers in higher education). 3. ed. Frederiksberg: Samfundslitteratur.*

Examination language

Danish.

The study programme may exempt individual students from the deadlines specified for passing the exam, if the exemption is due to illness, maternity or paternity leave or exceptional circumstances.

17. 3rd-semester exam

The 3rd-semester exam is an internally assessed exam which takes place before the end of the 3rd semester. The exam must document that the student has achieved the learning outcomes that have not been subject to examination in the 1st-year exam. The exam is made up of a project and an oral exam. One individual overall grade is given.

Exam participation prerequisites

The students must meet the following requirements in order to sit the exam:
The written project, which constitutes the assessment as well as the examination basis, must

- meet the formal requirements stated below, and
- be submitted in due time according to the exam plan, which can be found on eCampus.

Non-performance of the prerequisites means that the students cannot sit the exam and that they will be considered to have made an exam attempt.

Examination procedure

The exam is an internally assessed oral examination based on a written group project.
One individual overall grade is given based on an overall evaluation of the written and oral performance. The exam is graded according to the 7-point grading scale.

A group may have up to 3 members.

The exam is worth 20 ECTS credits.

Formal written project requirements

Digital submission

Each exam project must be submitted electronically in PDF format as a single file to the educational institution conducting the examination.

Assessment criteria

The assessment criteria for the exam are the same as the learning outcomes for the compulsory educational components for the 3rd semester, cf. the national section of this Curriculum.

Learning outcomes are described in the national section of this Curriculum.

Scheduled time

The exam will take place at the end of the 3rd semester. Information about time and place can be found on eCampus.

Examination language

Danish.

18. The internship exam

The students must prepare a report on the internship. The report is to be sent to the place of internship and the internship supervisor.

The internship report is part of the exam and the assessment basis. The internship exam takes place immediately after the conclusion of the internship. The exam must document that the student has achieved the learning goals that are fixed for the internship.

Exam participation prerequisites

Students must meet the following requirements in order to sit the exam:

- The requirements of the Internship Portal must be met, e.g. filling in the internship contract, learning outcomes, log book etc.

The written project, which constitutes the assessment as well as the examination basis, must

- meet the formal requirements stated below and be submitted in due time, cf. the exam plan, which can be found on eCampus.

Non-performance of the prerequisites means that the students cannot sit the exam and that they will be considered to have made an exam attempt.

Examination procedure

The exam is an internally assessed oral examination based on a written report.

One individual overall grade is given based on an overall evaluation of the written and oral performance. The exam is graded according to the 7-point grading scale.

The exam is worth 15 ECTS credits.

Formal written report requirements

The internship report, which constitutes the written part of the exam, must include:

The introductory part

This part must include information on who has made the report, in which connection it has been made and briefly about the report.

The introductory part must include the following:

- Cover/cover page
- Title page
- Table of contents

The main part

This part must include problem statement and research question(s), analyses, assessments, solutions and conclusions.

The main part must include the following:

- Introduction
- Main text
- Conclusion

The appendix part

This part must include drawing, data sheets, etc.

The internship report in connection with the internship exam may not exceed 20,000 characters including spaces and graphics. Cover page and table of contents are not included, and appendices are not part of the assessment.

Digital submission

The written internship report must be submitted electronically in PDF format as a single file to the educational institution conducting the examination.

Examination language

Danish.

19. Final exam project

The final exam project examination is an external exam that, alongside the internship exam and the other exams of the programme, must document that the goals for the learning outcomes of the programme have been achieved.

For the final exam project requirements and learning outcomes, please see the national section of this Curriculum.

Exam participation prerequisites

The written project, which constitutes the assessment as well as the examination basis, must

- meet the formal requirements for the final exam project; see the national section of this Curriculum; and
- be submitted in due time according to the exam plan, which can be found on eCampus.

Incorrect submission of the written project, which constitutes the written part of the exam, means that the students cannot sit the exam and that they will be considered to have made an exam attempt.

The exam will not take place until the students have passed the final exam of the internship as well as the other exams of the study programme.

Examination procedure

The exam is an externally assessed, individual oral examination based on a written project.

One individual overall grade is given based on an overall evaluation of the written and oral performance. The exam is graded according to the 7-point grading scale.

The exam must document an understanding of practice and centrally applied methods in relation to a practice-based problem based on a specific assignment or project within the service engineering field. The problem statement, which must be central to the profession, is formulated by the student, possibly in collaboration with a company. The educational institution must approve the problem statement and research question.

The students will be assigned one or more institutional supervisors and may be assigned an external supervisor from the company in connection with the preparation of the final exam project.

The exam is worth 10 ECTS credits.

Formal written project requirements

The project, which constitutes the written part of the exam, must include:

- Cover page with title
- Table of contents
- Introduction, including presentation of problem statement, research question and approaches
- Background, theory, method, analysis, including description and substantiation of the choice of empirical data[4], if any – for answering the research question
- Conclusion (remember that the introduction and the conclusion must relate to each other. In principle, it should be possible to understand the introduction and conclusion without reading the background and analysis chapters)
- Discussion in which the students place their research and findings in a wider context.
- Reference list (including all sources referred to in the project)
- Appendices (include only appendices central to the report)

The final exam project may not exceed 45,000 characters including spaces and graphics. Appendices will not be assessed.

Drawings are not considered as appendices..

Digital submission

Each exam project must be submitted electronically in PDF format as a single file to the educational institution conducting the examination. The educational institution conducting the examination will make sure that all external examiners will have access to the projects in question when they have been submitted.

[4] *"Empirical material is material that is subject to investigation and which can be referred to (observations, data, statements, texts, sources)." Rienecker L. & Jørgensen P.S. 2005 Den gode opgave – opgaveskrivning på videregående uddannelser (The good paper : a handbook for writing papers in higher education). 3. ed. Frederiksberg: Samfundslitteratur.*

Assessment criteria

The assessment criteria for the exam are the same as the learning outcomes for the final exam project, see the national section of this Curriculum.

Scheduled time

The exam will take place at the end of the 4th semester. Information about time and place can be found on eCampus.

Examination language

Danish.

Authorisation exams

Apart from the four fixed compulsory exams it will be possible to sit the authorisation exam for the specialisation. The exam, which is offered by the Danish Safety Technology Authority, is optional; however it must be passed in order to be able to apply for authorisation.

The authorisation exam in gas installations and gas fault finding is offered as an elective educational component, whereas the authorisation exam in sanitation is part of the 1st-year exam.

20. Elective educational components

Contents

The elective educational components give the student the opportunity to qualify study-related and professional competences through specialisation and elaboration on subjects that are broadly related to the heating, water and sanitation field.

Each year a number of elective components will be offered, their descriptions being made available on eCampus.

The students may plan their elective educational components themselves as a theoretical and/or practical educational programme to be approved by the study programme.

Scheduled time

Elective components take place in the second year of the study programme.

Examination procedure

The exam(s) is/are internally assessed and oral, and graded according to the 7-point grading scale.

The exam in gas fault finding is an externally assessed exam and will be assessed passed or failed.

Examination language

Danish.

21. The elective subject: Gas technology (2) – part 1 3 ECTS credits

Gas technology (2) presupposes participation in and passing of Gas technology (1). Gas technology (2) is assessed together with Gas technology (1) in the 3rd-semester exam.

Gas technology (2) is about construction and installation of major boiler houses and other gas-fired plant.

Construction and installation of major boiler houses and other gas-fired plant. 3 ECTS credits

Knowledge

The students should have acquired knowledge about

- authority provisions and regulations, authorisations and certificates for gas technology systems;
- the properties and combustion of gas, gas supply systems, installations and components in earth and building;
- gas-consuming appliances and boiler houses, ventilation and flue systems; and
- dimensioning and establishment of gas technology systems with associate automation.

Skills

The students should be able to

- plan and dimension gas technology systems as well as establish and handle operation and maintenance of gas technology systems with associate automation; and
- assess installation forms and choose relevant, safety-related and up-to date solutions.

Competences

The students should be able to

- design and plan the execution of works on gas technology systems with appurtenant automation; and
- assess, advice on and make decisions in accordance with applicable laws, regulations and standards for ordinary gas technology systems with appurtenant automation.

The elective subject: Gas technology (2) – part 2 7 ECTS credits

Gas technology (2) presupposes participation in and passing of Gas technology (1).

Gas technology (2) is about gas fault finding and adjustment, consumer advice, start, service and calls to small gas technology systems.

7 ECTS credits

Knowledge

The students should have acquired knowledge about

- authority provisions and regulations, authorisations and certificates for gas technology systems; and

- gas technology, adjustment, control and testing of gas technology systems, including ventilation and flue systems with appurtenant automation.

Skills

The students should be able to

- systematically test and control executed gas technology systems, including ventilation and flue systems with appurtenant automation;
- adjust gas technology systems for correct function;
- systematically service small gas technology systems, including ventilation and flue systems with appurtenant automation;
- locate faults in gas technology systems, including ventilation and flue systems with appurtenant automation;

Competences

The students should be able to

- plan the execution of works on gas technology systems, including ventilation and flue systems with appurtenant automation;
- adjust, locate faults on and service small gas technology systems, including ventilation and flue systems with appurtenant automation; and
- handle advice to and instructions of consumers about safety, energy and environmental matters in gas technology systems, including ventilation and flue systems with appurtenant automation.

22. Credit transfer for elective educational components

Passed elective educational components are equivalent to the corresponding educational components offered by other educational institutions that offer the same programme and components offered by other higher education providers.

Pre-approved credit transfer can be applied for if credit is requested for educational components not offered by the programme.

23. Educational components that may take place abroad

According to special agreement with the educational institution, the internship and certain parts of the elective educational components may take place abroad.

Elective educational components associated with gas fault finding and gas technology cannot take place abroad.

24. Learning and teaching forms

In our service engineering programmes, we use a wide range of teaching and learning methods that combined support the students in achieving the learning outcomes described in this Curriculum.

The learning and teaching methods are based on UCN Technology's common learning/teaching approach. The learning approach is based on the PULSE philosophy about "The Whole Person" which describes the learning outcome as three dimensional, namely:

- Head: "Knowledge, reflection and the ability to generate ideas"
- Heart: "Personal insight and development, relations and co-operation"
- Legs: "Initiative and responsibility"

The general learning and teaching methods are dialogue-based class tuition, assignments and project work in groups. However, the programme also features many other activities such as study group work, self study, individual assignments and projects, presentations in front of groups and the whole class, interdisciplinary theme activities and much more.

See also the study activity model "The Blue Model" for further distribution of the above tuition forms in the individual semesters.

Furthermore, different activities that can help promote learning in the individual are offered: theme days, after-hours meetings, lectures by external speakers, field trips etc.

Requirements for the ability to read texts in foreign languages, if any

International and European norms and standards may be written in English. Otherwise, students are not required to have any knowledge of foreign languages other than that stated in the Admission Order.

25. Obligation to participate

For the learning and teaching methods of the programme to work as intended, students are under an obligation to participate, which includes an obligation to submit or present assignments and projects.

The obligation to participate may also be a prerequisite for exam participation.

Furthermore, some programme elements may impose an obligation to attend.

An obligation to participate and an obligation to attend, if any, that are prerequisites of participating in exams, will appear from the description of the individual exam.

26. Criteria for assessing study activity

Registration may be terminated for students who have not complied with the study activity requirements for a continuous period of at least one year.

The definition of study activity is that within the past 12 months the students have

- participated in at least two different exams;
- passed at least one exam;

- fulfilled the obligations to participate in any kind of activity that is part of the study programme, including group projects, joint projects, distance learning activities etc. as described in this Curriculum;
- submitted the assignments, reports, etc. that are prerequisites for exam participation as described in the curriculum, the coursework being academically honest and not including material that is the copyright of others; and
- attended activities to which an obligation to attend applies as stated in this Curriculum.

Non-compliance with one or more criteria in the definition of 'study activity' may be the grounds of termination of registration as a student.

Periods during which students have been away due to leave of absence, maternity or paternity leave, adoption of a child, verified illness or military service do not count as non-compliance with study activity requirements. On request, the students must provide documentation of such matters.

The study programme may grant exemption from these stipulations in exceptional circumstances. The application for exemption is to be submitted to the programme director.

Students will be informed in writing before their student registration is terminated. In connection with such notification, students will be made aware of the above rules. In the letter, students must be informed that they will have 14 days to submit documentary evidence to prove that periods during which they were not participating should not count as non-compliance with study activity requirements. Furthermore, students will be notified of the deadline for making an appeal for exemption.

If the student has not responded within the fixed deadline, his/her registration as a student will be terminated.

If the student requests that registration is not terminated, the procedure will be suspended until the programme director has decided the case.

Students may make a complaint to the programme director about the decision within two weeks of receipt of the decision. The complaint will suspend proceedings. If the programme director maintains the decision, the students may appeal to the Danish Ministry of Higher Education and Science within two weeks of receipt of the decision, but only in respect of legal matters.

Rules about the exams in which the students must have participated before the end of the 1st and 2nd semester and passed before the end of the 3rd semester according to Ministerial Order no. 1519 of 16 December 2013 on examinations in higher education programmes (the Exam Order), and where the order for this study programme lays down deadlines for completion of the education, shall remain in force regardless of the provisions in this document.

27. Resit and illness resit exams

Illness resits

Students who were prevented from attending an exam owing to verified illness or other unforeseeable reason will have the opportunity to resit the exam or sit the illness resit exam as soon as possible. If the exam takes place in the final exam term, students will have the opportunity to resit the exam in that exam term or immediately after the term.

The illness resit may be identical with the next ordinary exam. It is the student's responsibility to stay informed on when (illness) resit exams will be held.

Information about time and place for each illness resit can be found on eCampus.

Illness must be verified by medical certificate. The educational institution must receive the medical certificate within three working days after the exam was held. Students who suffer from acute illness during an exam must substantiate that they have been ill on the day in question.

If illness is not verified according to the above rules, the students will be considered to have made an exam attempt.

It is the students' responsibility to cover the expense of a medical certificate.

Resits

Where the students have failed or not attended an exam, they are automatically registered for a resit, as long as exam attempts remain. The resit exam may be identical with the next ordinary exam.

It is the students' responsibility to stay informed on when resits will be held.

Information about time and place for each illness resit can be found on eCampus.

The programme can grant exemption from continued registration when this is founded in exceptional circumstances, including documented disability.

28. Study aids

Any rules governing a restriction in the use of study aids are found in the description of the individual exam.

Special exam arrangements

Examinations must be taken in understandable Danish.

Students may apply for special exam conditions if their medical condition or relevant specific disabilities qualify them to do so. The application must be submitted to the programme not later than four weeks before the exam is to take place. The application deadline may be extended in cases of sudden health-related problems. With the application the following should be enclosed: a medical certificate; a statement from e.g. a speech, hearing, dyslexia or blind institute; or other evidence of the health condition or relevant specific functional impairment.

Students whose mother tongue is not Danish may apply for an exemption from the requirement that writing and spelling skills must form part of the assessment criteria for the final degree project. The application must be submitted to the programme not later than four weeks before the exam is to take place.

Students whose mother tongue is not Danish may apply for permission to bring dictionaries to exams.

Applications for permission to bring other study aids must be submitted to the programme not later than four weeks before the exam is to be held.

29. Academic misconduct at exams

When handing in a written exam assignment, the student must confirm by signature that the assignment was prepared without undue help.

Use of your own work and the work of others – plagiarism

Academic misconduct at exams in the form of plagiarism includes instances where a written assignment, in full or in part, appears to have been made by the student or students themselves, even though the assignment includes identical or near-identical wording of other people's statements or works where the text is not set off by the use of quotation marks, italics, indentation or any other clear indication with a reference to the source, cf. UCN's requirements to written work; includes substantial sections of text that are so similar to another work in wording etc. that by comparison it is clear that the sections could not have been written without the use of the other work, etc.; includes the use of the words or ideas of others without giving due credit to the sources; and/or re-uses text and/or central ideas from your own previously assessed works without observing the stipulations in sections 1 and 3.

Disciplinary actions in events of academic misconduct and disruptive behaviour

During exams

An examinee who without question

- unduly obtains help; or
- helps another student do an assignment, or
- uses non-authorised aids

and

an examinee who

- behaves in a disruptive manner

at an exam may be expelled from the exam room while the exam is taking place by the programme director, a person authorised by the director, or jointly by the assessors. In such cases, the justification of the expulsion from the exam room will be assessed in connection with the subsequent decision on the sanctions to be imposed.

In cases of less serious disturbing behaviour, the students will first be given a warning.

Suspected academic misconduct at exams including plagiarism, during and after the exam

If, during or after an exam, an examinee is suspected of

- having obtained or provided undue help;
- passing off another person's work as their own (plagiarism), or
- having used his/her own previously assessed work or parts of it without reference (plagiarism);

this will be reported to the relevant programme.

The process of identifying academic misconduct, including plagiarism

Suspension of the exam

If the reported misconduct regards plagiarism in a written assignment that is to make up the basis of assessment for a subsequent oral exam, the programme director will suspend the exam, if the matter cannot be settled before the fixed examination date.

Form and contents of a report of misconduct

Misconduct must be reported without undue delay. The report must include a written presentation of the case with information to identify the reported persons, as well as a brief account of the matter and the existing evidence. Previous incidents of academic misconduct by one or more of the reported students must be stated explicitly.

When plagiarism is reported, the plagiarised sections must be clearly indicated and a reference to their sources stated. The copied text must also be indicated in the source text.

Involving the students – hearing of the parties

The programme director decides whether the hearing of the students will be oral, made in writing or a combination.

For an oral hearing, the examinee will be summoned for a discussion for further clarification of the case where they will be presented with the documentation of the assumption of academic misconduct, and where they will be able to state their point of view. The examinee may bring a companion.

For a written hearing, the documentation of suspected academic misconduct will be sent to the students requesting them to state their point of view in writing.

Sanctions against academic misconduct and disruptive behaviour during exams

If the suspected misconduct is confirmed after the matter has been investigated, and if the misconduct has had or will be able to have an influence on the assessment of the examinee's performance, the programme director will suspend the examinee from the exam.

In less serious cases, the examinee will first be given a warning.

In aggravating circumstances, the programme director may suspend the examinee for a period of time. In such cases, the examinee will receive a written warning that any further instances of misconduct may lead to expulsion.

A period of suspension means that any grades awarded for the exam in question will be annulled, and that they will be considered to have made an exam attempt.

The examinee will not be allowed to resit the exam and will have to wait until the next ordinary exam in that particular programme is offered.

In cases of aggravating circumstances, the programme director may decide to suspend the examinee from the institution for a period of time. In such cases, the examinee will receive a written warning that any further instances of misconduct may lead to expulsion.

The students cannot attend lectures or exams while suspended.

Complaints

The decision that a student is suspended and has used an exam attempt is final and cannot be brought before a higher administrative authority.

Complaints on the grounds of legal matters (e.g. legal incapacity, the hearing procedure, guidelines on making complaints, correct interpretation of the Exam Order, etc.) may be brought before the Danish Agency for Higher Education. The complaint must be brought before the institution and directed to the attention of the relevant programme director who will make a statement. The complainant will have the opportunity to comment on the statement, the deadline being usually one week. The institution will submit the complaint, the statement and any comments made by the complainant to the Danish Agency for Higher Education. The deadline for complaints made to the institution is two weeks from the day the complainant was notified of the decision, cf. section 51 of the Exam Order.

Complaints about exams and appeals against decisions5

Complaints about exams

The examinee is recommended to seek guidance from the student advisor in connection with the complaints procedure and writing a complaint.

The regulations on complaints about exams can be found in section 10 of the Exam Order.

The Exam Order divides complaints into two kinds:

1. Complaints about the examination basis etc., the course of the exam and/or the assessment
2. Complaints about legal matters

The two kinds of complaints are dealt with differently.

Complaints about the examination basis etc., the course of the exam and the assessment

Within two weeks after the assessment of the exam has been announced in the usual way, an examinee may submit a written, substantiated complaint about

- the exam basis, including the exam questions, assignments etc. and its connection to the objectives and requirements of the programme;
- the examination procedure; and
- the assessment.

The complaint may concern any exam, including written exams, oral exams and combinations hereof as well as practical or clinical exams.

The complaint should be submitted to the programme director.

The complaint will immediately be brought before the original assessors, i.e. the examiner and the external examiner from the exam in question. The statement made by the assessors must be usable as the basis of the institution's decision regarding discipline-specific matters. The institution will usually give the assessors a deadline of two weeks to make their statements.

Immediately after the statements are made available, the complainant will be given the opportunity to comment on them within, usually, one week.

5. See section 10 of Ministerial Order no. 1519 of 16 December 2013 on examinations in profession-oriented higher education programmes (the Exam Order): 10: https://www.retsinformation.dk/Forms/R0710.aspx?id=160839

The decision will be made by the institution based on the discipline-specific statements made by the assessors and any comments made by the complainant.

The decision must be made in writing and must include a rationale. It may regard

- an offer of a new assessment (re-assessment); this only applies to written examinations;
- an offer of a new examination (resit); or
- a dismissal of the complaint.

If it is decided that the student will be offered re-assessment or a resit exam, the programme director will appoint new assessors. Re-assessment may only be offered in cases of written exams where written material exists for assessment, as new assessors will not be able to (re-)assess an already held oral exam, and as the notes of the original assessors are personal and cannot be passed on to others.

If the decision is to offer the complainant a re-assessment or resit exam, the complainant must be notified that a re-assessment or a resit exam may result in a lower grade. The complainant must accept the offer within two weeks of the announcement of the decision. Acceptance of an offer of re-assessment or a resit exam cannot be cancelled. If the complainant does not accept the offer within the deadline, re-assessment or a resit exam will not be held.

Re-assessment or a resit exam must take place as soon as possible.

For re-assessment, the assessors must be presented with the case documents: the exam paper, the students' assignment, the complaint, the statements made by the original assessors with the comments made by the complainant, and the decision made by the institution.

The assessors will deliver the result of the re-assessment including a written explanation and their assessment to the educational institution. Resit exams and re-assessments may result in lower grades than the initial grades.

If it is decided that a re-assessment or resit exam will be offered, the decision will apply to all students who took the exam in question, if their assignment features the same deficiency as the one being complained about.

The complaint must be submitted to the programme director not later than two weeks (14 calendar days) after the assessment results of the exam in question have been announced. If the deadline falls on a holiday, the deadline will be extended to expire on the first weekday after that day.

In exceptional circumstances, the deadline may be disregarded.

Appeals

The appellant may bring the institution's decision on academic/professional matters before an appeals board. The activities of the appeals board fall under the Danish Public Administration Act, including the stipulations on legal incapacity and the duty of confidentiality.

The appeal is to be submitted to the programme director.

The deadline for appeals is two weeks after the examinee has been notified of the decision. The above requirements for complaints (being in writing, substantiated etc.) also apply to appeals.

The appeals board is made up of two appointed external examiners who will be appointed by the chairman of the external examiners, one examiner and a student within the same field (from the study programme) both appointed by the programme director.

The appeals board will make a decision based on the material that formed the basis of the institution's decision and the examinee's substantiated appeal.

The appeals board will process the appeal, and the decision may regard

- an offer of a new assessment made by new assessors; this only applies to written examinations;
- an offer of a new examination (resit) with new assessors; or
- a dismissal of the appeal.

If the decision is to offer the appellant a re-assessment or resit exam, the complainant must be notified that a re-assessment or a resit exam may result in a lower grade. The appellant must accept the offer within two weeks of the announcement of the decision. Acceptance of an offer of re-assessment or a resit exam cannot be cancelled.

If the appellant does not accept the offer within the deadline, re-assessment or a resit exam will not be held.

Re-assessment or a resit exam must take place as soon as possible.

For re-assessment, the assessors must be presented with the case documents: the exam paper, the students' assignment, the complaint, the statements made by the original assessors with the comments made by the complainant, and the decision made by the institution.

The appeals board must have made a decision within two months – and within three months for summer exams – after the appeal was made.

The decision of the appeals board is final meaning that the case cannot be brought before a higher administrative authority regarding the parts of the appeal that concern discipline-specific matters.

Complaints about legal matters

Complaints about legal matters in decisions made by the assessors in connection with re-assessment or resit exams or the appeals board's decisions may be brought before University College of Northern Denmark within two weeks of the day the students were notified of the decision.

Complaints on the grounds of legal matters in decisions made by the institution according to the stipulations of the Exam Order (e.g. legal incapacity, the hearing procedure, correct interpretation of the exam order etc.) may be brought before the institution, which will make a statement, and the student must be given the opportunity to comment on this statement, the deadline being usually one week. The institution will submit the complaint, the statement and any comments made by the complainant to the Danish Agency for Higher Education. The institution will submit the complaint, the statement and any comments made by the complainant to the Danish Agency for Higher Education. The deadline for lodging complaints with the institution is two weeks (14 days) from the day the complainant was notified of the decision.

Exemption

The institution may grant exemption from the rules in this institutional section of the curriculum that are laid down solely by the institution[6], when found substantiated in exceptional circumstances. The institutions co-operate on a uniform exemption practice.

30. Effective date and transition provisions

This institutional section of the curriculum enters into force on 1 September 2014 with effect for all students who are and will be registered in the programme and for all exams commenced on said date or thereafter.

6. This means that the individual institution cannot deviate from rules stemming from ministerial orders, such as the rule that the internship exam is to be assessed according to the 7-point grading scale, or that all exams must be passed before the students may sit an exam in the final exam project