



Curriculum

The Common and Institutional Sections

for

Bachelor of Architectural Technology and Construction Management (ATCM)

at

VIA Built Environment

Aarhus and Horsens

This curriculum also applies to the **Bachelor of Architectural Technology and Construction Management** Course taught at Aarhus TECH

For students who have initiated their education before August 2016

The purpose of the curriculum

This curriculum has been prepared by the Committee for Education of Architectural Technology and Construction Management, Construction Technologists and Surveying and Mapping Technicians.

The purpose of the curriculum is:

- to translate the main legislation for a common curriculum, which describes the general terms relating to the courses
- to ensure uniformity in the courses
- to provide students with the opportunity to move between different learning environments with full credit, and
- to ensure a common character in the curricula in terms of both form and content.

The curriculum is developed with a starting point in existing legislation.

The subsequent curriculum is applicable for **Architectural Technology and Construction Management Course** and is divided into 2 main sections, one COMMON SECTION, which is based on the National Framework for Curricula, and an INSTITUTIONAL SECTION, which describes the framework that is established for the **Architectural Technology and Construction Management Course** at VIA´s various learning environments in Horsens, Aarhus and Holstebro.

Where it is appropriate to do so in the curriculum for the Architectural Technology and Construction Management Course, information about the Construction Technician and Surveying and Mapping Technician courses are given, as all three courses are mentioned in the same departmental order and there is also joint teaching in several course elements.

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THE CURRICULUM ´S COMMON SECTION

0.The educational courses covered

0.1. The Bachelor Degree Program of Architectural Technology and Construction Management (ATCM course)

The purpose of this course is to qualify graduates to be able to independently plan, manage and perform technical and administrative work in the design and execution phases of construction and civil engineering projects.

The course is a “Professional Bachelor Course” and qualifies the student to continue in further and higher education.

The ATCM course has duration of 3 years and 6 months (210 ECTS credits). The Course ´s English title is: **Bachelor of Architectural Technology and Construction Management.**

The course ´s 6th semester comprises 20 weeks Internship.

0.2. Academy Profession Degree Program in Construction Technology

The purpose of the course is to qualify the graduates to collaborate with others in planning and carrying out tasks within the area of construction and civil engineering, and industrially manufactured building components.

The program is an academy profession degree (AP) allowing the students to continue their education in the Bachelor Degree Program of Architectural Technology and Construction Management. A 3rd Semester course credit is given.

The duration of this AP program is 2 years (120 ECTS Credits). The course ´s English title is: *Academy Profession (AP) Degree Program in Construction Technology*. During the first 1½ years of this course, the teaching is common with the **Bachelor of Architectural Technology and Construction Management**. In the 4th semester, a 10 week Practical Placement is implemented.

0.3. Academy Profession Degree Program in Surveying and Mapping

The purpose of the course is to qualify the graduates to collect process and disseminate spatial information and attain professional skills as mapping and land surveying technicians (AP). The education is an academy profession program and qualifies the student to continue in further and higher education.

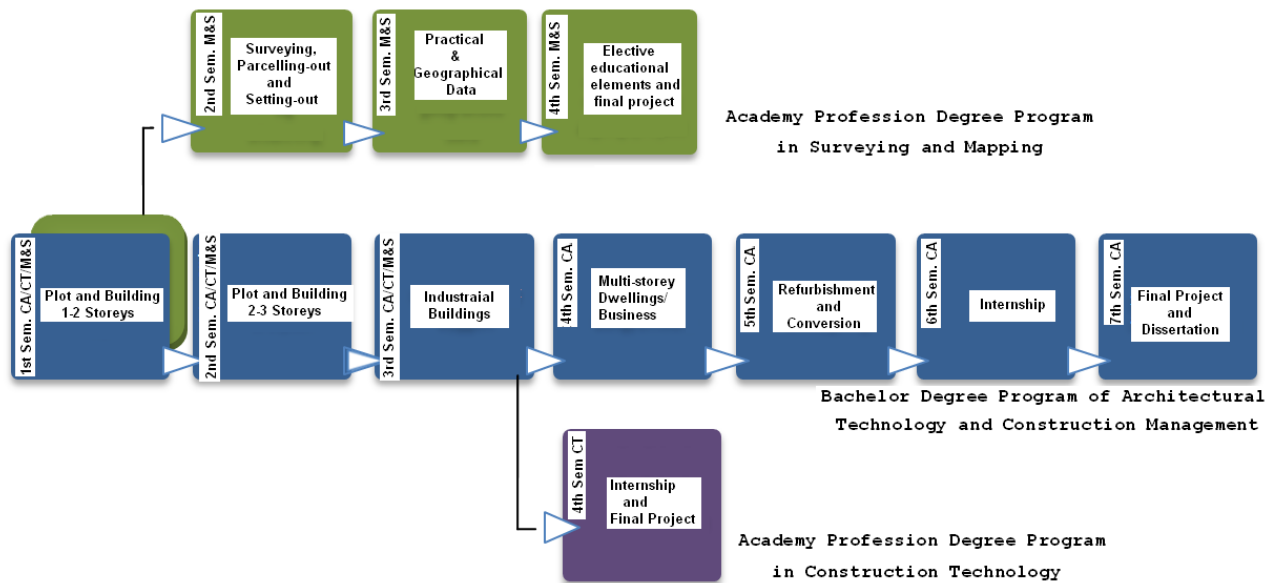
The duration of the AP degree in surveying and mapping is 2 years (120 ECTS credits).

The course ´s English title is: *Academy Profession (AP) Degree Program in Surveying and Mapping*.

In 3rd semester includes a 10 week Practical Placement.

0.4. Common for all programs

In accordance with the Professional Higher Education Act, there is a degree of common content in the three courses. Schematically, this can be described as follows:



1. Legal basis for the courses

1.1. Danish legislation

The courses are governed by the following laws and regulations:

- The Academy Profession Programmes and Bachelor Programmes Act no. 1147 of 23/10 2014
- Ministerial Order no. 1047 of 30/06 2016 on Academy Profession Programmes and Bachelor Programmes
- Ministerial Order on the Construction Technology programme order no. 715 of 07/07 2009
- Ministerial Order no. 1048 of 30/06 2016 on Admission to Academy Profession Programmes and Bachelor Programmes
- Ministerial Order no. 1046 of 30/06 2016 on Examinations on Professionally Oriented Higher Education Programmes
- Ministerial Order on Examinations on Professionally Oriented Higher Education Programmes no.114 of 03/02 2015

The laws and departmental orders are available for students at www.retsinfo.dk

The present curriculum has been prepared in accordance with the rules contained in the above departmental orders.

1.2. Other bases

1.2.1. ECTS (European Credit Transfer System)

Based on the above legislation, each semester is also described in accordance with ECTS guidelines (European Credit Transfer System). This means, among other things, that the subject areas are described in terms of content (qualitative description) and the length/study load (quantitative description) - meaning that one ECTS is equivalent to an average workload of a student for approximately 27-28 hours .

One semester's workload represents about 825 hours of study, or approx. 41 hours per. week for 20 weeks.

The ECTS system is used to document the student's "academic baggage" (portfolio), for example, for school transfers, exchanges, or further education. Thus, it is evidence of the student's educational performance, but not their professional level.

Further information on the ECTS system is available at www.ciriusonline.dk

1.2.2. The Danish Qualifications Framework

The qualifications framework is an annex to the Act on Accreditation and Approval of Academy Profession Degree Courses and Profession Bachelor Courses.

The qualifications framework describes the levels of training on three dimensions: knowledge, skills, and competencies.

This description framework is used systematically in the description of individual courses and semester learning goals.

1.2.3. Educational Elements

Educational elements are training modules with their own learning goals.

Educational elements can be mandatory or optional.

For the courses described in this curriculum, one semester constitutes an educational or course element.

In some semesters there are optional course elements. These are part of the semester.

2. Exam Forms and Assessment

An exam is an assessment event which results in one or more grades, which appear on the diploma as proof that an educational course has been implemented and completed. Exams are normally held in extension to course closure.

The purpose of implementing exams is to get documentation as to the extent to which an examinee meets the goals and requirements established for the profession/course.

The extent of external exams is determined by the Ministry of Higher Education and Science, according to which at least 2 exams should be held during the course of study.

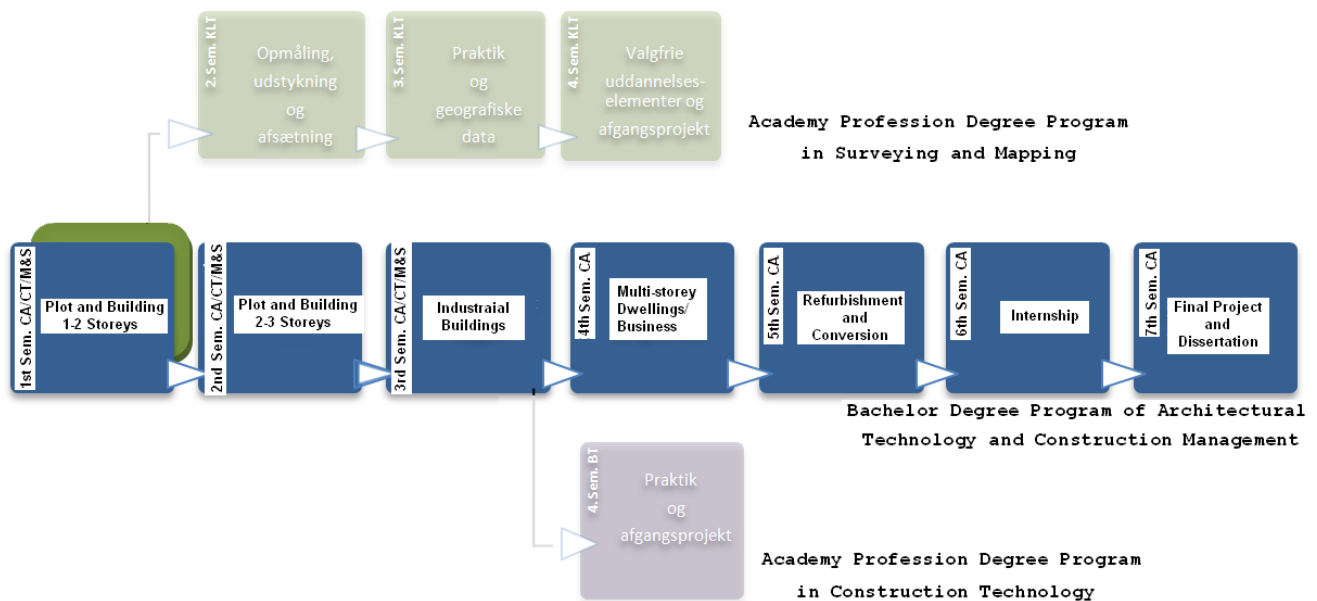
Program	Semester	Exam	ECTS
ATCM, CT, SM	1 st Semester	*Study start test / Internal evaluation	60
ATCM, CT, SM	2 nd Semester	External exam	
ATCM, CT	3 rd Semester	Internal exam	25 + 5
SM	3 rd Semester Internship	Internal exam	15
SM	3 rd Semester	Internal exam	15
ATCM	4 th Semester	Internal exam	25 + 5
ATCM	4 th Semester Internship	Internal exam	15
CT	4 th Semester final project	External exam	15
SM	4 th Semester final project	External exam	15
ATCM	5 th Semester	Internal exam	15 + 15
ATCM	6 th Semester Internship	Internal exam	30
ATCM	7 th Semester dissertation	Internal exam	10
ATCM	7 th Semester final project	External exam	20

ATCM: Architectural Technology and Construction Management

CT: Construction Technician

SM: Surveying and Mapping

*Study start test – look 8.8.



EP indicates External Test (with external examiner)

P indicates an internal or external examination of the individual college's choice

E indicates Evaluation(not shown in the diagram!)

*Internship = Internship

All exams based on the departmental order must be individual exams, meaning that the students must be evaluated individually, possibly on the basis of a joint project in conjunction with the individual student's own work.

The exams are mainly multi-disciplinary exams, which are implemented for several disciplines simultaneously.

Grades are given in accordance with the 7-Step Grading Scale, and the exams must be passed separately in order that the student may continue. The grades are printed on the diploma.

The extent of other exams and evaluations are determined by the curriculum of the individual college. This is in accordance with agreements in the National Committee for Curriculum development.

There are 2 external exams for the Bachelor Program.

There are 2 external exams for the AP Degree Program in Construction Technology.

There are 2 external exams for the AP Degree Program in Surveying and Mapping Technology.

For all courses, the 2nd semester must be passed within 2 years for the student to continue their course.

The Bachelor Program in Architectural Technology and Construction Management must be completed within 5½ years of initiation.

The AP Degree Programs (CM and S&M) must be completed within 4 years of initiation.

At the start of each educational element a student is automatically registered for any exams in that particular element. By being registered for an exam a student uses an exam attempt.

In accordance with the Ministerial Order on Examinations, it is not possible to unregister for an exam in any other case than what is described in the Ministerial Order § 7.

2.1 Mandatory tests and exams

See previous section

2.2 Special test conditions

Application for permission to bring relevant devices shall be filed no later than 4 weeks before the test.

2.3 Exam Languages

The tests must be sat on understandable Danish/English.

2.4 Enrolment

- Signing up for a semester leads to automatic registration for the associated exams or evaluation.
- When registering for a semester one attempt for exam is used. This does not apply if the student is unable to attend the examination due to documented illness and maternity. Special rules apply in case of illness.
- The associated exam means that you are automatically enrolled in the subsequent re-examination, if you failed the ordinary examination or for reasons as stated above have not participated.
- Withdrawal from an exam is not possible.

2.5 Illness

(1) A candidate who has been prevented by certified illness or maternity from sitting or completing a test must be given the opportunity to resit the test as soon as possible. For this purpose, illness may be proved by presenting a medical certificate to VIA University College, School of Technology and Business no later than two weeks after the original date of the test.

(2) Efforts should be made to resit the examination before the start of the following semester, but this requirement may also be satisfied if the student sits the next scheduled test. Students are not entitled to start a new semester until the previous semester's test has been duly passed.

(3) If this test is scheduled to take place in the final test period of the course, the student must be given the opportunity to sit the test during or immediately after that same test period.

2.6 Cheating on Exams

Disturbing behaviour and cheating in exams

It is considered cheating when an examinee during exams

- receives unauthorised assistance or

Other special circumstances preventing a candidate from attending the test will be dealt with at VIA University College, School of Technology, Business and Creative discretion.

- assists another examinee with answers or
- makes use of aids other than those permitted

When submitting a written exam, the examinee must by signature confirm that the paper was written without unauthorised assistance of any kind. The signature may be digital.

Plagiarism

Plagiarism is considered cheating if it is found in a submitted paper in the following categories during an exam:

- a written product that is or has been submitted for assessment, for instance a bachelor's project or a weekly assignment
- a written product that is going to be or has been part of the assessment in an oral exam – for example a paper that serves as a prerequisite for signing up for and participating in the oral exam

When is it considered plagiarism?

It is considered plagiarism when a student tries to give the impression of being the originator of an idea, a text, a layout etc. in a written assignment when the originator is another person. It is considered plagiarism if an assignment entirely or partially appears as being produced by the student/s him/herself/themselves, if the assignment

1. includes identical or almost identical reproduction of others' formulations or work when the reproduced parts are not marked with quotation marks, written in italics, indented or with another distinct indication of source references, including page numbers or the like (cribbing/copying). This is according to the programme guidelines for preparing a written assignment, also referred to as *editorial guidelines*.
2. includes substantial passages with a choice of words that are so close to another printed medium, that when compared it is obvious, that the passages could not have been written by the student without using the other printed medium (to paraphrase etc.) or
3. includes the use of words or ideas of others without making references or giving credit to the originators (other kind of plagiarism),
4. reuse text and/or central ideas from one's own work that has earlier been through an assessment or earlier published works without taking the above-mentioned points into consideration.

Particularly on disturbing behaviour during tests and exams

The educational institution has the authority to remove an examinee from a test or exam if the examinee is displaying disturbing behaviour, for example if the examinee is noisy or breaking the institution's code of conduct during an exam. In less serious incidents the educational institution will first issue a warning¹. The examination monitors will report the incident to the Head of Department.

The reporting must take place immediately and without unnecessary delay. A written presentation of the case that contains information that can identify the reported examinee, as well as a short statement and the existing documentation about the incident must be attached to the reporting. If the incident is a repeated offense for one or more of the reported persons, this must be stated.

Please read the paragraph on sanctions to find information about the penalty for disturbing behaviour. .

Procedures and sanctions for cheating in exams and disturbing behaviour

Procedures

Who is obliged to report? Anyone² who has a presumption of cheating is obliged to follow up on the suspicion and – if the presumption is maintained – to report it to the Head of Department.

Reporting

If the presumption of cheating in an exam is strengthened, the internal examiner and/or the external examiner must report the incident in writing to the Head of Department of the study programme in

question³. At the same time the internal examiner and/or the external examiner will inform the student that the incident has been reported to the Head of Department. If an assessment has not been made at the time of reporting, the school report will contain a 'not submitted'-note and an assessment will not be made.

The Head of Department

When the Head of Department receives a report on cheating in an exam, he or she must decide whether to dismiss or proceed with the case.

If the Head of Department decides to proceed with the case, he or she is responsible for gathering documentation that might be missing and also for inviting the student to a meeting where the student has the possibility to comment on the report.

The student must receive a copy of the report with the invitation which must also inform that the premise of the meeting is presumed cheating on an exam and that the student is allowed to bring an assessor to the meeting. The assessor can counsel the student during the meeting, but cannot participate in the conversation. If it is not possible to organise a meeting, written communication must be used.

If the case is dismissed by the Head of Department, the assessment will take place in the usual manner, if it has not already been made.

Sanctions

On the basis of the report and the meeting the Head of Department will decide whether or not it is an incident of cheating in exam and also decide what type of sanction or penalty should be used against the student. The Head of Department can only decide on sanctions or penalty if the incident, from his or her perspective, is beyond any doubt a case of cheating.

The incident is reported to the Head of Studies if - and only if - the incident is so serious that it ought to lead to suspension or expulsion from the educational institution. In all other cases the Head of Department makes the decisions.

The student is informed of the final decision in writing. The person who reported the incident and the student counselor will receive a copy - and a copy is added to the student's folder.

Types of penalty

Provided that cheating on an exam is proved, one of the following penalties will be used:

- **Warning**
Written or verbal warning of breaking the rules.
- **Suspension from written exam**, if a violation of the exam regulations has taken place⁴. If that is the case, the student will be registered as 'absent' from that particular exam.
- **Cancellation of a written paper**
The cancellation includes the written assignment where the cheating has been observed. The cancellation can happen even if an assessment has been made. It will be noted that the student has

been unsuccessful in an exam attempt⁵. A repeated exam attempt with unauthorised assistance or non-permitted aids will result in permanent expulsion from the study programme.

- **Expulsion or suspension from the study programme**

If the incident is a case of serious or repeated cheating, the student will be expelled or suspended from the educational institution⁶. The expulsion means that the student is excluded from participating in all activities at VIA University College, including all participation in classes and exams. The suspension entails that the student is excluded from participating in all activities at VIA University College, including all participation in classes and exams in the suspension period. In the case of suspension the student is registered as taking a leave of absence during the period in question. After the suspension period, the student is automatically readmitted as a student at VIA University College in the study programme in question.

Apart from the above mentioned penalties, the incident may be reported to the police if it concerns civil law.

2.7 Complaint

Exam complaints

Complaints can be submitted on the basis of:

- The basis of examination; e.g. exam questions, assignments and their relation to the educational goals and requirements.
- Examination procedure
- Review/result of the exam

The complaint must be submitted in writing and substantiated and individually submitted by the student no later than 2 weeks after the student is informed of the result of the exam (kan uddybes af den enkelte uddannelse).

The complaint must be sent to the Head of Department who will process it. The student is entitled to receive a copy of the assignment given by the institution and a copy of the student's submitted assignment in the case of a written exam. As a rule, the Head of Department presents the complaint to the original adjudicator: internal and external examiner. The examiners have 2 weeks to submit their professional opinions of the student's questions. The student must be given the opportunity to comment on the professional opinions and has one week to reply.

The Head of Department determines the outcome of the complaint based on the comments and the opinions. The decision must be in writing and substantiated and the result may one of the following:

- Reassessment. Except for oral examination.
- Reexamination or
- Dismissal

The adjudicators must be in agreement, if the appeal is dismissed by the Head of Department.

The student must be informed as soon as the decision has been made. If the result is a re-examination or a reassessment, the student must be informed of the fact that this can result in a lower grade.

Re-examination or reassessment

An offer of re-examination or reassessment must be accepted no later than 2 weeks after the student is informed of the decision. An acceptance hereof cannot be withdrawn. Reassessment or re-examination shall not be conducted, if the deadline is not respected.

Re-examination or reassessment must take place as soon as possible. If a diploma has been issued, the institution must take the diploma back until the assessment is available and subsequently issue a new diploma.

In the case of re-examination and reassessment, new examiners will be assigned.

If the result of a complaint is re-examination or reassessment, the decision applies to all examinees if the original exam is equally inadequate to the former.

Particularly about reassessment

In the case of reassessment, the examiners must have the files submitted: Exam questions or assignment, exam paper, the complaint, the original examiners' opinions including comments from the student and the decision from the institution or the Ministry. The examiners will inform the educational institution of the results of the new assessment, including a written evaluation of the assessment. The educational institution will inform the student about the assessment and the evaluation hereof.

Examination questions formulated by the Ministry

The educational institution will immediately forward its own evaluation as well as complaints regarding examination questions, formulated by the Ministry of Higher Education and Science, to the aforementioned Ministry.

Appeal of the decision

In case the student disagrees with the decision, he/she has the opportunity to lodge an appeal against the decision no later than 2 weeks after being informed of this decision. The appeal must be in writing and substantiated and sent to the Head of Department, who will appoint an appeals board.

Particularly about the appeals board⁶

The Head of Department will appoint an appeals board as soon as possible after the submission of the appeal. Permanent appeals boards can be appointed. VIA university College will defray the cost of the appeals board. The board consists of two external examiners, an examination eligible teacher and a student from the same education as the student filing the complaint.

About the selection:

- The president of the corps for external examiners will designate the two external examiners and designate one of them as president of the board. The president can designate himself as external examiner or as president of the board.
- VIA University College will designate the examination eligible teacher and the student.

The appeals board is covered by the Law of Public Administration, including conflicts of interests and confidentiality.

All members of the board must participate in board discussions and receive all documents for the board to achieve quorum. The discussion can be in writing and digital if there is consensus among the board members of a written process. If consensus among the board members cannot be reached, the discussion will take place at a meeting where all members must be present.

If the discussion ends by voting and there is a tie, the vote of the president is decisive. If the board is aware of errors in an exam during the process, VIA University College must be informed hereof and VIA will decide how to correct the error in accordance with the Executive Order of examination in chapter 9.

The appeals board's decision

The material which formed the basis for the initial decision is the basis for the new decision made by the board. The decision made by the board must be in writing and substantiated and may result in one of the following:

- Reassessment. Except by oral examination.
- Re-examination or
- The complaint is dismissed

The Head of Department must be informed of the decision by the board as soon as possible. In the case of a winter exam, no later than 2 months and in the case of a summer exam, no later than 3 months after the Head of department has been informed.

VIA University College must inform the student as soon as possible if the process of the appeal cannot be completed before the deadline. The information/message must be in writing and substantiated and include information about the expected date of completing the process of the appeal. The head of Department will inform the student as soon as possible and the examiners will receive a copy of the decision when the decision has been made. If the decision includes re-examination or reassessment, the student must be informed that this may result in a lower grade.

Re-examination and reassessment will take place as described in the previous section "Re-examination and reassessment".

The professional decision of the appeals board cannot be appealed any further.

Legal complaints

A student always has the right to complain regarding legal matters concerning a decision made by VIA University College or the appeals board. The complaint must be submitted within 2 weeks from the date where the student has been made aware of the decision.

The complaint must be submitted to VIA University College who will give a statement. The complaint and statement will be forwarded to The Ministry of Science, Innovation and Higher Education.

3. Entry requirements

Successful completion of the following courses provides admission to the aforementioned 3 programs:

Entry through upper secondary school level: (HTX, STX, HHX, HF):

Specific entry requirements:

mathematics at Level C

Entry through vocational training courses from one of the following:

vocational training as a bricklayer
vocational training as a paver
vocational training as a road builder
vocational training as a builder
vocational training within plumbing and the sanitary-technical area
vocational training as a machine-joiner
vocational training as a joiner
vocational training within the timber industry's building education courses.
Qualification as a technical designer:
no specific entry requirements

Entry through vocational training:

other relevant vocational training courses
specific entry requirements:
English at Level C and Mathematics at Level C.

Other methods of entry:

entry exam to engineer programs:
no specific entry requirements

4. Course credits and further education

4.1. Within the same course

Full credit will be given for transfer from one educational institution to another. 3 semesters credits will be given upon transfer from a completed construction technology course to training within a ATCM course.

4.2. With regard to other courses

After completion of the ATCM education, 6 semesters of credit is given at the commencement of training for MSc. Scient. Techn. in Construction and Civil Engineering with specialization in "Construction and Civil Engineering", "Construction Management", or "Building Informatics".

For further information about credits, see the section on credits in the Institution Section.

5. The Education as Architectural Technology and Construction Management

5.1. The aims and objectives of the course

The purpose of the course is to qualify graduates to be able to independently plan, manage and perform technical and administrative work in design and execution within the area of building construction and civil engineering.

The education is a bachelor program and qualifies the student to continue in further education.

5.2. Course duration and elective subjects (specialization)

The professional bachelor education is a full-time educational course, which is rated at 3 years and 6 months of student FYE, equivalent to 210 ECTS units.

The program gives the candidate the right to use the title Bachelor of Architectural Technology and Construction Management.

The course must be completed within 5 ½ years of initiation.

Each semester has a duration of 20 weeks, equivalent to 30 ECTS credits.

In the 3rd and 4th semesters there are elective subjects equivalent to 5 ECTS credits each. In the 5th semester there is an elective equivalent to 15 ECTS credits.

The 6th semester comprises a 20 week Internship, equivalent to 30 ECTS credits. This internship is unpaid and is implemented in one or more businesses.

5.3. The learning objectives of the course

The measure of learning outcomes includes knowledge, skills and competencies, which an ATCM must achieve through the course.

Knowledge

The graduates have achieved:

- 1) knowledge and understanding of the profession's principles, theories and methods of management, design, planning and execution of complex construction and civil engineering tasks, and can reflect on the application of the aforementioned theories and methods in different situations.
- 2) knowledge of the profession-relevant knowledge concepts and theoretical methods.
- 3) knowledge of relevant communication theories and methods for dissemination of professional issues, including digital media, within both the building professional and general professional areas.
- 4) knowledge of professional principles and models for business creation, operation and organization.
- 5) knowledge of societal and technological factors that influence the construction process, including issues in relation to energy, the work environment and sustainability in a local and global perspective, and
- 6) managerial, social, linguistic, cultural and ethical aspects of design and cooperation in construction projects.

Skills

The graduates are able to:

- 1) assess and apply the appropriate methods of the profession for management, design, planning and execution of complex construction and civil engineering tasks, including digital programmes and systems
- 2) select the appropriate method and justify its choice within the profession's area

- 3) evaluate, combine and integrate relevant research knowledge in solving complex technical construction issues
- 4) disseminate knowledge of construction research and development to the relevant parties through appropriate media
- 6) assess the business and organizational issues, and
- 7) assess and understand the social and technological conditions in the design of buildings, including the aspects of energy, the work environment and sustainability.

Competences

The graduates are able to:

- 1) manage, design, plan and execute complex construction and civil engineering tasks independently and in collaboration with other professionals
- 2) identify their own knowledge and learning needs and acquire new knowledge and translate this into practice in relation to the profession
- 3) handle communication between users, developers, consultants, designers and contractors about the technical design, procurement and execution of complex construction and/or civil engineering works
- 4) handle administrative tasks and project management within the construction and civil engineering sector
- 5) deal with societal and technological aspects in the design and processing of construction projects
- 6) address social, cultural, and ethical issues in the design and processing of construction projects, and participate in management and collaborative relationships with others who have different educational, linguistic and cultural backgrounds.

5.4. The content of the course

The ATCM Course consists of a mandatory part that has a content equivalent to 125 ECTS credits and an elective part that has a content equivalent to 85 ECTS credits.

5.5. The mandatory part

The ATCM Course is organized within the following core areas:

a) Content:

1 *general*, including communication, knowledge theory, work methodology, organization, cooperation, information technology, innovation, numeracy and applied mathematics and physics, and foreign languages.

2 *business*, including the operation of businesses, administration, legislation and jury prudence.

3 *production*, including construction and civil engineering work, production and project management.

4 *design*, including construction, design, and project management.

5 *registration*, including surveying, the setting out of buildings and structures, and the (structural) evaluation of buildings and structures.

b) ECTS - extent:

- 1) General 30 ECTS
- 2) Business 19 ECTS
- 3) Production 28 ECTS
- 4) Design 38 ECTS

5) Registration 10 ECTS

Learning objectives:

5.5.1. Learning objectives for the core area *General*

Including: communication, knowledge theory (scientific format), methodology of work, organization, cooperation, information technology, innovation, numeracy and applied mathematics and physics, foreign languages

The core area *general* helps the student develop knowledge, skills and competences in business, production, design and registration.

Knowledge

The graduates must have knowledge of:

- the principles of oral and written communication in general and within the profession with the use of varying methods and tools in both Danish (alternatively a different mother tongue) and English (alternatively a second foreign language)
- knowledge theory relevant to the profession and the ability to reflect on its significance for personal and professional development
- methods for personal planning, and the principles and methods for collaboration and learning
- approaches to innovation within the profession, and be able to reflect on the methods applied in relation to the concrete task
- general mathematical and principles of building physics relevant to the profession.

Skills

The graduates must be able to:

- independently, and in collaboration with others, disseminate professional issues by involving both theory and practice and using appropriate presentation tools, and perform communicative tasks related to the planning and management of construction and civil engineering tasks in Danish and at least in one other language
- independently and in collaboration with others organize own and project team work and reflect on the various work forms' cooperation with the results obtained
- seek out, use and evaluate critically the common technical research property (literature) and other material relevant to the profession
- use general language and science knowledge to solve tasks within the profession
- use innovative approaches for solutions to given technical issues.

Competences

The graduates must have competences:

- to conduct interdisciplinary presentations of construction and civil engineering projects using analogue and digital project materials
- to advocate appropriately and to evaluate critically in writing and speech with regard to interdisciplinary issues
- to reflect on theoretical and methodological issues within the profession area
- to reflect on their own and others' work methods and results and implement improvements to these (Innovation)
- to identify own learning needs and, in relation to the profession and core areas, be able to develop own knowledge and skills.

5.5.2. Learning objectives for the core area *Business*

Including: business operation, administration, legislation and jury prudence.

Knowledge

The graduates must have knowledge of:

- and be able to reflect on the principles, methods and rules within the establishment, operation and administration of the profession's relevant business types and enterprises
- basic principles, theories, methods and tools related to management of business economy and personnel administration in the relevant types of businesses and enterprises
- the relevant legislative background for entering into contracts and agreements, and for resolving conflicts
- the relevant and current opportunities and rules for the establishment of own businesses and enterprises within the profession
- corporate and organization forms in connection with the establishment and operation of enterprises, and be able to reflect on the strategies and business plans that are the basis for the selection of these, and
- have knowledge of and understand the social, cultural and ethical issues which affect the installation, operation and administration of a company.

Skills

Graduates have skills to be able to:

- assess the theoretical and practical issues, and in consultation with others, select and use appropriate methods, knowledge and tools for organizing, managing, administering and operating businesses
 - assess and apply relevant legislation in relation to the operation and administration of businesses
- understand the accounting principles for running a business and be able to use the methods and tools relevant for budgeting, accounting, and tendering bids and projects within the industry
- develop and apply the relevant business forms and contracts related to company management, planning, administration, and the tendering of bids and projects.

Competences

The graduate has competences to:

- create self-employment within the profession's current and relevant work areas
- independently and in collaboration with others handle the management and governance of small firms
- independently and in collaboration with others handle the management of bidding, tendering, entering into contracts, and managing technical projects with regard to time, economy and legal issues
- identify own learning needs and, in relation to the profession, develop own knowledge and skills in business operation and management.

5.5.3. Learning objectives for the core area *Production*

Including: construction and civil engineering work, production and project management.

Knowledge

Graduates must have knowledge of:

- concepts, theories and methods of management, planning, control and execution of production processes within the construction industry, and be able to reflect on these
- general theoretical production concepts and methods, common practices in business, etc., and be able to reflect on these
- applied principles, theories and methods for project management of construction and civil engineering output in factories or on site, and be able to reflect on these
- relevant communication theories and methods for disseminating issues within production processes
- societal and technological factors that influence the production process.

Skills

The graduates must be able to:

- analyze, evaluate and use current and relevant methods and tools for management and planning of production
- manage projects independently and in collaboration with other professions, including dissemination of technical issues concerning production to other stakeholders
- combine and integrate relevant experience, knowledge and research results in solving production processes
- analyze and understand issues in production processes and, in an interdisciplinary context, enter into collaboration regarding solutions
- assess and understand the societal and technological aspects of production
- assess and understand the social, cultural and ethical contexts of production and cooperate in carrying out this.

Competences

Graduates have skills to:

- independently and in collaboration with other professionals, plan and manage the production of complex construction and civil engineering tasks
- handle construction management and project management in production
- manage communication between users, developers, regulators, consultants and contractors on the production of complex construction and civil engineering works or building components
- involve relevant social and technological aspects of production
- identify own learning needs and, in relation to the profession's core areas, develop own knowledge and skills.

5.5.4. Learning objectives for the core area *Design*

Including: Construction, design and project management

Knowledge

Graduates must have knowledge and understanding of:

- principles, theories, methods and tools within design and design management, and be able to reflect on the chosen methods to solve a given task
- various forms of cooperation and forms of procurement, and be able to reflect on the information needs that the choice of these make necessary for phasing/establishing levels of information in the design process
- design methodology, multidisciplinary collaboration with other professionals on the design, and working with developers (clients), local authorities and other stakeholders on the planning and design of construction projects
- and be familiar with, new building customs, styles, construction methods and materials
- static analysis, load calculations, estimate calculations (bids) for design and execution of construction and civil engineering projects.
- building physics (statics), moisture and energy conditions, estimative calculations and technical installations' incorporation in connection with the design and execution of construction and civil engineering tasks
- quality assurance, occupational health (work environment) and document handling related to project management from planning to operation of construction and civil engineering projects.

Skills

Graduates must be able to:

- in collaboration with other professions, design single-family houses, industrial buildings and commercial and residential units as multi-storied complexes, and conversions of existing buildings using knowledge of building legislation, standards, common technical know-how and new knowledge within the building and construction sector
- master known and used design, project management and communication tools used within the profession
- master various forms of cooperation and procurement forms, and apply generic skills related to solving given tasks within the profession's different job functions
- in collaboration with other professions, perform static analyses and use estimative dimensioning in connection with designing.
- in collaboration with other professions, calculate u-values, heat loss and energy frames, and apply them in practice when designing
- set out utility supply systems and build-in arrangements for technical installations and, in collaboration with others, dimension such installations
- develop plans for quality assurance and health and safety for construction projects during the design, execution and operational & maintenance phases.

Competences

Graduates have competences to:

- in collaboration with other professionals, produce, review and quality assure materials in the design and execution phases - including establishing of output requirement lists, descriptions for planning, assessment, pricing and the preparation of project documents as a basis for the construction and operation and maintenance
- independently perform project management and document management in a construction and civil engineering project
- handle construction management independently and in interdisciplinary contexts
- evaluate and select design solutions and materials for building structures in complex construction and civil engineering tasks
- identify own learning needs and, in relation to the profession and the core area, develop own knowledge and skills.

5.5.5. Learning objectives for the core area Surveying and registration

Including: surveying, setting out buildings, collection of spatial data.

Knowledge

Graduates must have knowledge and understanding of:

- applied principle theories, methods and tools used in building surveying, land surveying, setting out of buildings, and the collection of spatial data related to the construction and civil engineering sector
- the Cadastral System, easements, property records, the District Plan System, and that physical planning can have restrictions for the location and layout of new buildings
- the different types of maps and geographic information systems used in connection with the design of new buildings, and the data underlying and supporting registration and evaluation of development sites, facilities, building components and the condition of premises, and be able to reflect on these
- the instruments used for surveying and setting out building structures, and the accuracies obtained through surveying and setting out of buildings.

Skills

Graduates must be able to:

- assess registration and setting-out tasks for construction sites and set-out smaller buildings on profiles, understand and use of situation plans with contour lines and other mapping work used in the construction industry, and assess district plans and understand the limitations they put on the location and layout of new buildings
- plan, execute and assess the quality of construction surveying tasks related to registration of building components and building and civil engineering structures
- register and assess building components, structures and premises´ condition and, on that basis, develop and justify appropriate operational and maintenance plans, renovation and/or conversion proposals and other actions.

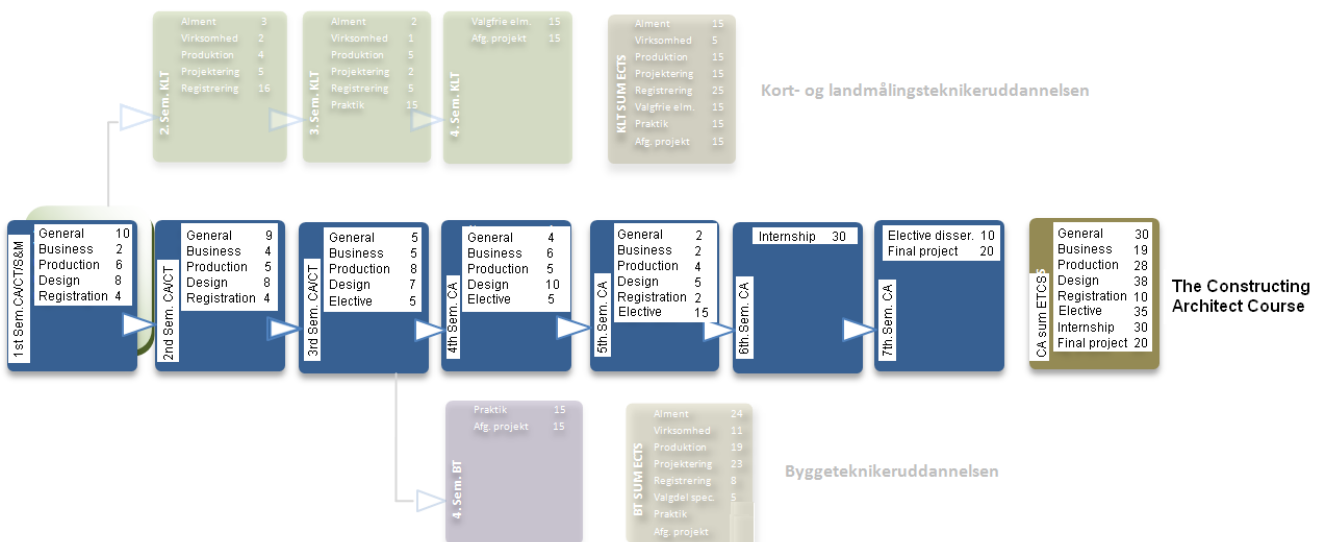
Competences

Graduates have skills to:

- engage in interdisciplinary cooperation in surveying, setting-out and registration in connection with construction and civil engineering tasks
- identify own learning needs and, in relation to the profession and the core area, to develop own knowledge and skills.

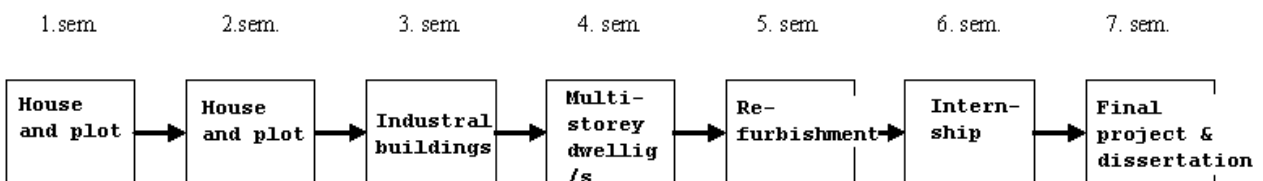
5.6. Overview of ECTS credits distributed over the semesters

The core areas are distributed as follows over the semesters:



6. Mandatory course elements

Each semester constitutes an educational element with a separate topic. In this way, the students become familiar with different types of buildings, structures and installations - as well as relevant laws and regulations, etc. The different topics are shown in the following figure:



*Internship = Internship

6.1. The individual course elements ´ (semesters ´) content

6.1.1. - 1st Semester (30 ECTS credits)

Topic: Plot and house in a single storey

Learning objectives for 1st Semester:

Knowledge:

By the end of the 1st Semester, the students must:

- have knowledge of, and be able to reflect upon, the profession ´s basic professional-technical disciplines and the related relevant documentation
- have knowledge of, and able to reflect upon, methods and practices for planning and management, and collaboration and learning
- have knowledge of general mathematical principles of relevance to the profession
- have knowledge and understanding of the general execution methods in relation to the semester ´s topic
- have knowledge of general communications methods, tools and standards in connection with the semester ´s topic
- have knowledge of relevant laws and regulations in connection to the semester ´s topic
- have knowledge of data collection relating to design tasks, to local authority application, and to the preparation of documentation.

Skills:

By the end of the 1st Semester, the students must:

- be familiar with the construction industry ´s stakeholders, professional areas, and have insight into the construction process in relation to the semester ´s main topic
 - be able to apply professional design techniques to a dwelling in 1-2 levels, and use methods of organization for the construction process
- have acquired fundamental skills in the use of methods and tools for collecting and analyzing information within the profession ´s area
- be able to disseminate practical and professional issues that relate to the semester ´s topic to relevant stakeholders and partners.

Competencies:

By the end of the 1st Semester, the students must:

- be able to carry out appropriate design and documentation materials in relation to the semester ´s main topic
- be able to understand the connection between the various technical issues related to the semester ´s main topic
- be able to identify own learning needs based on the knowledge, skills and competences that have been acquired during the semester.

6.1.2. - 2nd Semester (30 ECTS credits)

Topic: Plot and house in 2-3 storey

Learning objectives for 2nd Semester:

Knowledge:

By the end of the 2nd Semester, the student must:

- have knowledge of and be able to reflect on the general design, planning and management tools, technical installations, static principles and documentation for a dwelling in 2-3 storey

- have knowledge and understanding of general execution methods in the construction process
- have knowledge of general communication methods, tools and standards in the design of a dwelling in 2-3 storey.

Skills:

By the end of the 2nd Semester, the student must, at a basic level, be able to:

- use methods and tools for collecting and analyzing information with regard to the semester's main topic
- assess the theoretical and practical issues regarding the design of a one family dwelling and justify the selected actions and solutions
- use design methods to layout homes in 2-3 storeys and apply methods for organizing their execution
- disseminate practical and professional issues and solutions to partners and end-users.

Competencies:

By the end of the 2nd Semester, the student must, at a basic level, be able to:

- use the acquired knowledge and skills that lie within the semester's theme to perform documented analyses of the relevant construction professional issues and their solutions
- implement the design of a building in relation to the semester's topic and explain the principles of its execution.

6.1.3. - 3rd Semester (30 ECTS credits)

Topic: Industrial buildings and industrially produced building components (25 ECTS credits)

Learning objectives for 3rd Semester

Knowledge:

By the end of the 3rd Semester, the student must:

- have knowledge of, and be able to reflect on, constructions, planning and management tools, technical installations, static principles, and documentation in relation to the semester's main topic
- have knowledge and understanding of industrial production and execution techniques in the construction process, and be able to reflect on these
- have knowledge of general communication methods, tools and standards in relation to the semester's main topic.

Skills:

By the end of 3rd Semester, the students must be able to:

- use methods and tools for collecting and analyzing information in relation to the semester's main topic
- use professional design techniques for industrialised construction, and be able to organize the production and construction processes
- assess the theoretical and practical issues regarding industrialised construction and justify the selected actions and solutions
- disseminate practical and professional issues and solutions to partners and end-users.

Competencies:

By the end of 3rd Semester, the students must be able to:

- use the acquired knowledge and skills related to the semester's main topic to perform documented analysis of the relevant construction professional issues
- create new solutions within the design of constructions, which are aimed at optimizing production.

Elective course element (specialization) (5 ECTS credits)

Specialization is dealt with in the Institution Section of the curriculum.

6.1.4. - 4th Semester (30 ECTS credits)

Topic: Multi-storey buildings with dwellings and commercial units (25 ECTS credits)

Learning objectives for the 4th Semester

Knowledge:

By the end of the 4th Semester, the student must:

- have knowledge of, and be able to reflect on, the design of constructions, planning and management tools, technical installations, static principles, and documentation dealing with multi-storey residential buildings with commercial units
- have knowledge and understanding of general production and execution methods for multi-storey buildings with dwellings and commercial units, and be able to reflect on these
- have knowledge of general communication methods, tools and standards when designing multi-storey buildings with dwelling and business units.

Skills:

By the end of the 4th Semester, the student must:

- be able to use professional methods for designing multi-storey buildings with dwellings and commercial units and apply methods for planning of execution of the works
- be able to assess different methods and approaches and make an informed choice
- be able to convey the chosen methods and technical solutions to the relevant cooperation partners.

Competencies:

By the end of the 4th Semester, the student must:

- be able to carry out appropriate analyses and documentation materials to execute multi-storey buildings with dwellings and commercial units
- be able to manage and implement the design and production of a multi-storey building with dwellings and commercial units, taking into account the social and technological circumstances.

6.1.5. - 5th Semester (30 ECTS credits)

Topic: Refurbishment and extension to multi-storey apartment buildings (15 ECTS credits)

Learning objectives for 5th Semester

Knowledge:

By the end of the 5th Semester, the student must:

- have knowledge of and be able to reflect on the design of constructions, planning and management tools, technical installations, static principles and documentation related to refurbishment and extension projects
- have knowledge and understanding of general design and execution techniques in relation to refurbishment and extension projects´ tasks
- have knowledge of general communication methods, tools and standards relating to refurbishment and extension projects´ tasks.

Skills:

By the end of the 5th Semester, the student must be able to:

- use methods and tools for collecting and analyzing information in relation to refurbishment and extension projects
- assess the theoretical and practical issues regarding the refurbishment and extension to apartment buildings, and make reasoned choices
- use professional methods of design for refurbishment and extension projects, and use techniques for planning activities for their execution on site
- disseminate practical and professional issues and solutions to partners and end-users.

Competencies:

By the end of the 5th Semester, the student must be able to:

- apply the acquired knowledge and skills related to the semester's main topic to perform documented analysis of the relevant construction professional issues and related solutions
 - manage and implement the design and production process of a refurbishment and extension project, taking into account the social and technological circumstances.

Elective course element (specialization) (15 ECTS credits)

Specialization is dealt with in the Institution Section of the curriculum (see Section 6.2)

6.1.6. - 6th Semester (30 ECTS credits)

Topic: Internship

Practical training is targeted at future employment as an ATCM and should be implemented in a private or public company in Denmark or abroad. The Internship companies must be able to offer internship tasks with a working content that is relevant to the education, with associated guidance.

Knowledge

After completion of the 6th Semester, the student must have:

- knowledge of and be able to reflect upon the practical work that the profession involves in the concrete Internship company
- knowledge of the Internship company's organizational, economic, administrative, social and working conditions.

Skills

After completion of the 6th Semester, the student must be able to:

- work with relevant professional issues within the profession's area
 - work independently, or in cooperation with others, in solving theoretical and practical tasks at the Internship company.

Competencies:

After completion of the 6th Semester, the student must have:

- skills related to translating the education's core areas into work with theoretical and practical tasks

6.1.7. - 7. Semester (30 ECTS credits)

- **Final project (Bachelor project) 20 ECTS credits**
- **Dissertation 10 ECTS credits**

Final project (the Bachelor project)

• **The Bachelor project is the student's final work that, (quote from Departmental Order No. nr. 636 of 29/06/2009 on Academy Courses and Profession Bachelor Courses), "must demonstrate the student's understanding of, and ability to reflect on, the profession's practice and application of theory and methods in relation to a practical problem issue. The problem issue, which must be central to the education and the profession, must be formulated by the student, possibly in cooperation with a private or public company. The educational institution must subsequently approve the problem issue/problem formulation"**

The project will be presented and defended without prior review by teachers and examiners. The students themselves select the documents from their own project material for digital presentation, and/or hanging on boards, at the exam venue. The project may, for a limited part, be executed in group collaboration, but the substantial part of the overall project will be assessed individually. A single grade in accordance with the 7-Point Grading Scale will be given.

The dissertation

Students must demonstrate their ability to express themselves in writing through their dissertation, and through it be able to process a self-chosen topic on the analytic level required for a professional bachelor education. The report must be an investigation of an industry-relevant issue. The analytical work should include theoretical studies and empirical studies to the extent it is relevant for the chosen topic. Furthermore, the dissertation must include a discussion of the chosen method of investigation and the chosen theory.

The dissertation report, which must not exceed 30 pages, is assessed as a written exam after the prior delivery of the report to the student's dissertation counsellor and external examiner.

THE CURRICULUM'S INSTITUTIONAL SECTION APPLICABLE TO VIA UC

6.2. Elective course elements

35 ECTS credits have been allocated for elective course elements in the ATCM Course, as follows:

- 3rd Semester 5 ECTS credits (innovation and
- 4th Semester 5 ECTS credits
- 5th Semester 15 ECTS credits
- 7th Semester 10 ECTS credits

The elective course elements' elective part is based on the mandatory part and aims at giving the students the opportunity to tune their studies to more specific areas of interest, and demonstrate problem solving through writing reports and application of basic knowledge (scientific)-theoretical analysis methods.

At VIA UC, students may principally choose to tune their education through 2 main directions:

- design
- execution

The 3rd Semester elective is a common effort to be assessed separately and outside the context of project work of the semester's topic.

The purpose of the elective part in this semester is to give students the opportunity to acquire additional knowledge about Innovation and Entrepreneurship.

The 4th and 5th Semester students can, within the semesters' main topic, freely choose their report topic, so long as the topic is relevant for the semester team.

In the 7th Semester, students may freely choose the subject of their dissertation when it is relevant to the profession, and it can be approved by the student's allocated counsellor.

The aim is that the students, based on their own areas of interest, are able to "tone" their education and advance their writing abilities in the same process.

The goal is to enable the students to acquire methodical working processes for solving and understanding all imaginable forms of professional tasks through the formulation and solving of own problems issues and problem formulations.

The aim is, furthermore, that students acquire new professional knowledge in a self-selected area.

The introduction of the elective part happens in the first part of the semester through a series of presentations by teachers and appropriate external specialists. A few weeks into the semester, each student delivers a written proposal/problem formulation to the class teacher, after which the student is assigned a mentor.

The report must be set-up in accordance with the scientific format for report writing with a content of max. 10 text pages (2400 characters per page), exclusive front page, contents and enclosures.

6.3. Internship(30 ECTS credits)

The Internship in the Architectural Technology and Construction Management is placed in the 6th Semester and represents 30 ECTS credits. During the internship period, the student must work in one or more businesses in the construction industry.

The Internship is placed at the end of the course, partly because the colleges want to give students a good background for choosing the profession area on their own merits, and partly to give companies a good opportunity to involve students in undertaking relevant tasks.

The Internship is unpaid, but the grant-eligible students (Danish students) will receive their usual grant during the Internship.

The company for the Work

Internship is usually chosen within the professional direction, which the student wishes to work in future - which also gives the best basis for the student's choice of dissertation and final project.

Internship is directed towards the student's area of future employment as an ATCM, and it is organized on the basis of the profession's different competence areas. Thus, in combination with other course elements, it helps students develop their professional skills.

Based on the experience of many students, Internship has been a direct route to their first appointment as an **Architectural Technology and Construction Management (ATCM)**, and has thus been a major career objective.

6.3.1. Purpose of the Internship

The Internship is a compulsory part of the Architectural Technology and Construction Management. The aim is to give students knowledge and understanding of the practical issues and methods, processes and job functions in a company. This is knowledge, which the student must be able to put into perspective in relation to the training undertaken, and be able to reflect upon in the choice of dissertation/ final project, and subsequent choice of work within the profession.

6.3.2. Objectives

For students, the objectives of the Internship are:

- to gain insight into the demands and expectations that companies have to ATCMs knowledge, skills, competencies and attitudes to work in the selected business type
- to experience an ATCMs daily work processes over a longer period
- to have the opportunity to work with the profession's tasks in a practical context
- to gain experience with other approaches, working methods and tools to solve specific tasks
- to get ideas or concrete proposals for topics for the dissertation and final project, which may be performed in conjunction with the company/other principals, and
- last, but not least, to expand their personal network that subsequently can be used for job-searching after graduation.

For the company, the objectives of the Internship are:

- to influence the education of future ATCMs/ potential employees
- to make contact with the educational institution in order to gain insight into the working methods, tools and issues involved in teaching, and thus to help influence the institution's development of the study program
- to attract new skills into the company for innovation and development (i.e., linguistic, cultural and innovative skills)
- to make contact to the students with a possible view to subsequent employment in the company.

For the college, the objectives of the Internship are:

- to update the insight into the knowledge and working methods and tools currently used in companies with a view to on-going development of the course
- To extend and strengthen cooperation with industry and businesses, in order to get updated information about requirements and expectations for the vocational knowledge, skills, competencies and attitudes to work
- To extend the college's business networks in order to recruit professional examiners, establish project cooperation, get access to relevant project presentations/materials for the coursework, establish relevant company visits, and to make arrangements for guest teachers to give lectures and presentations at the college
- Build networks for the college's internship and career services.

6.3.3. The college's obligations

At the college, the work of planning, information and implementation of Internships dealt with by a Internship coordinator, supported by a number of Internship counsellors.

However, it is a requirement that the students themselves be active in seeking their Internships, as this also serves as an important learning element in their education (preparation for job search).

The Internship coordinator's tasks are:

- to coordinate information about internships, including working with other colleges that offer the ATCM Course in Denmark.
- to advise students in connection with searching for internships
- to ensure that internship contracts are drawn-up, including making sure that the learning goals of each contract are in accordance with the purpose of the Internship, its objectives, content, scope and level

- to approve Internship
- to search out new Internship sites
- to help organize the Internship so that there is a correlation between experience and theory, and so that students have the opportunity to reflect on this relationship
- to coordinate and assist in maintaining contact with Internship sites in Denmark and abroad
- to participate in the assessment of Internship
- to approve students' Internship reports

The Internship coordinator and counsellors must monitor the student throughout the Internship process as necessary.

The Internship coordinator and counsellors are the students' contact at the college and must, therefore, be available for support and solving problems of a professional or personal nature.

It is up to the Internship coordinator, in collaboration with counsellors, to assess the extent to which there is a need to pay visits to the Internship sites, or whether contacts are solely based on email correspondence and telephone conversations in connection with pre-arranged cooperation agreements (the last is especially true of foreign Internship sites!)

6.3.4. The host company's obligations

The host company's/business' tasks include creating coherence between the ATCM-course and the reality that students are expected to experience after their graduation.

Approval of the Internship site occurs after a specific assessment of the site's ability to function as a relevant Internship /training site for students.

Approval of the Internship site is the duty of the internship coordinator or designated counsellor, and is formally marked by the approval of the signed Internship agreement between the student and host company (Internship site).

The host company must deliver the following:

- have knowledge of the ATCM-Course and the work area of an ATCM
- a construction-technically relevant work environment
- be willing to offer the intern the necessary coaching, mentoring and post-criticism
- an appropriate owner or employee-group who has the relevant skills and experience in the student's professional field. It is considered a strength for the Internship that the host company comprises several relevant professional competencies at the same site (e.g., architects, ACTMs, engineers, etc.)
- be willing to enter into a written Internship agreement between the student and host company, which contains a description of the tasks to be performed, when they need to be performed, and who the responsible contact person at the host company is
- assurance that the trainee is subject to a work environment, insurance conditions, and safety conditions as apply to its other employees
- a designated person as the student's training supervisor, that participates in the evaluation and approval of the internship

6.3.5. The Student's obligations during the placement

It is expected that the student, to the best of their ability, executes the tasks that the host company provides on a daily basis in connection with the placement on an equal footing with its other employees.

Students are responsible for (with possible assistance from the college's Internship coordinator):

- establishing placement contacts with the host company and drawing-up the Internship agreement in good time before the start of the placement. It may often be necessary to start several semesters in advance, depending on the choice of profession, or on the location of the Internship. (Denmark or abroad)
- taking the initiative to establish a plan for learning during the Placement in collaboration with the host company, including formulating practical/possible learning objectives (portfolio!). It is very important getting the plan approved by the Placement coordinator
- keeping a "log book" (portfolio) for the Placement period, which will form the basis for the Internship report and the ongoing contact with the Internship coordinator.
- writing a Placement report and obtaining approval of the Internship from the host company, and delivering the approval and report on time to the Internship coordinator.

7. Exchange semesters (between national or international institutions)

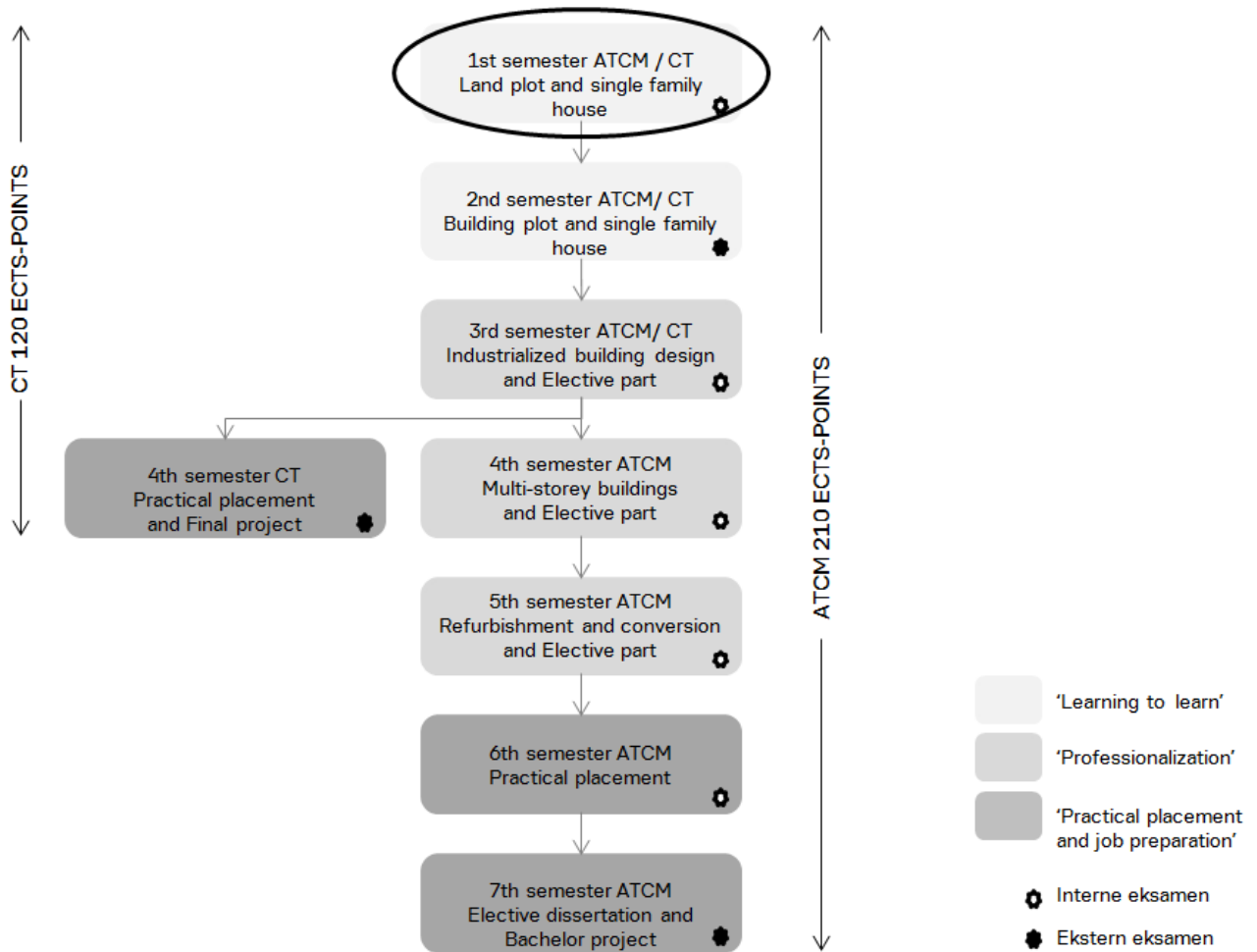
In the first and second semesters, there will only be the possibility of exchange between the Danish colleges offering the ATCM Course.

The ATCM Course at VIA UC Horsens has signed several agreements with foreign partner institutions regarding mutual exchange. Furthermore, the ATCM Course at VIA UC Horsens has signed agreements with a number of foreign partner institutions that involve the attainment of double degrees for their students when participating in local Bachelor courses and the ATCM Course at Horsens.

8. Teaching methods and work modes

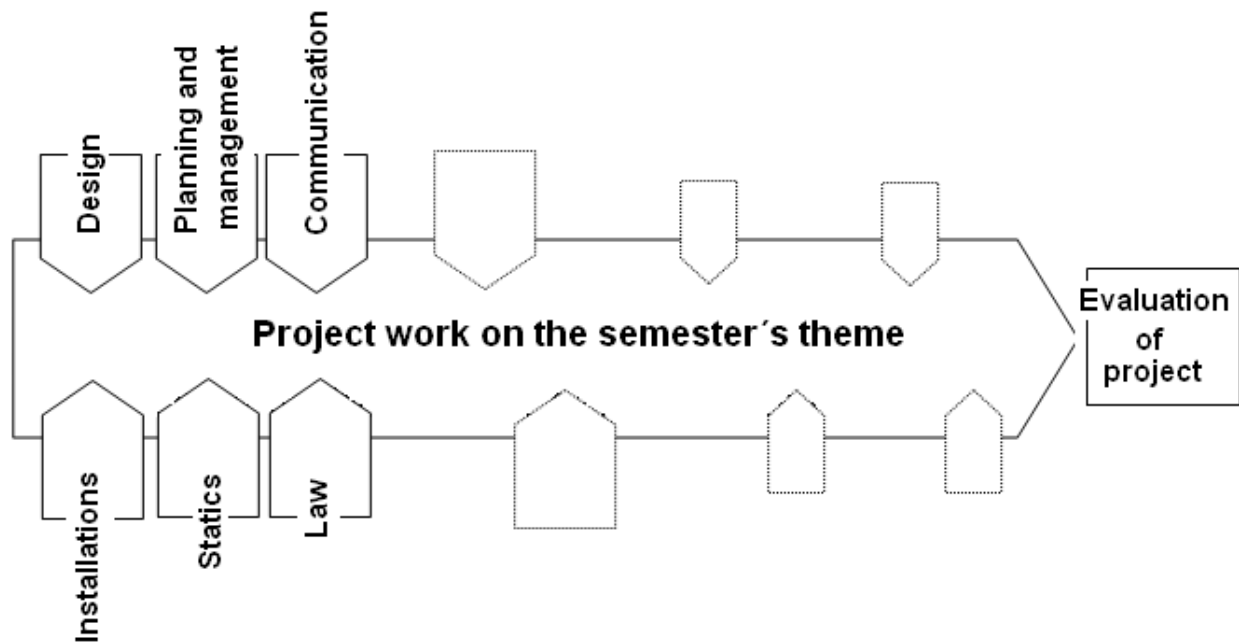
8.1. Educational environments

VIA UC prioritizes good and appropriate environments for learning in the ATCM Course at Horsens. The physical presence of the student at the institution itself has high priority. Therefore, VIA UC seeks to provide the best possible facilities and physical environment for the courses taught at Horsens. Each student has his own "work station" from the first to the seventh semester, although this may happen in different classrooms because of the size of the student cohort, etc. With regard to teaching methods, VIA UC has sought a diversity of environments so that there is a favorable progression in learning and in the course. The figure below shows a breakdown of the environment into three parts, entitled: "learning to learn", "professionalization" and " Internship and closure" (or reabsorption into the practical world). During the first part of the semester a lot of attention is given to acquiring meaningful study and work habits, and acquiring some basic ethics of the design profession's working methods. The professionalization element puts increased focus and demands on the technical content of projects, while students learn more advanced methods of analysis. The last part of the course is about going into depth with specific areas by selecting the topic for the internship period, the dissertation topic, and the topic for the final project.



8.2. The Problem-Based Learning (PBL)

As shown in the diagram below, it is work with the design project that is the cardinal point for the course, and this steers most of the other activities throughout the course of the semester. It is through the resolution of project issues that students demonstrate the development of their competences as ATCM. Teaching theory, group counseling, and independent project work is organized in relation to the individual classes, and all activities take place in the same classrooms.



The drawing shown above is an outline drawing showing the progress of a semester. The theoretical presentations are concentrated in the earliest part of the semester.

8.3. The project work

It is the intention that students, through their work with the projects, identify the need for necessary theoretical knowledge and seek out this knowledge themselves. The theory that is given at especially the beginning of the semester is seen as a general contribution towards opening the semester's theme up, delineating possible horizons, and thus constituting a "surplus to the students' projects". In addition to this, students must largely seek out and utilize the specific substance that may prove useful for the implementation of their projects.

8.4. Single subject teaching

The students' work on projects is supported through teaching, which is divided into a series of separate subject areas. The profession areas are divided into two main groups, the technical subject-specific areas and general subject areas.

Technical subject-specific areas:

BD: Building design

BPM: Planning and management

STD: Statics (load bearing construction)

TIN: Technical installations

JUR: Law

General subject areas:

COM: Communication

VT: Knowledge-theory (Scientific format, etc)

ICT: Information and communication technology

The daily timetable, which is available electronically on "UNTIS", is divided into lessons-units of 45 minutes and is a mixture of single subject input and independent work on the project.

8.5. Project guidance

Part of the teaching in the courses is given as guidance; colloquially known as "consultant support". Here, the teacher functions as support and sparring partner for project teams or individuals (as in the case of dissertation writing). The extent of the teaching and guidance is as shown in the timetable.

8.6. Resources and equipment

The physical and equipment-wise environment plays a major role for the academic environment and the learning processes that the college wants to support.

At the college, the students are divided into classes that typically comprise between 16 and 35 individuals. The classes have a permanent classroom which is their "home base", where each student has his own desk and chair. The classrooms are accessible around the clock to the student that has the right pass and keys. This prioritizing of the learning environment is again because of the common project and group work, which is the dominant study activity. Collaboration on projects with respect to both the close cooperation within groups and getting together as a class is seen as a vital contribution to learning.

In Horsens the library and reading rooms are located very close to the classrooms.

It is, however, a prerequisite for the course that each student provides his/her own laptop in accordance with the information issued by the college at the start of studies.

8.7. The methodology of study

As mentioned earlier under "Educational environments", the course is mainly divided into three environments - each of which has its own focus area, but the basic emphasis is that the individual takes responsibility for their own development. A tool to support this is portfolio writing, which means to write down one's learning and development goals on an ongoing basis during the course of studies, and subsequently to continuously self-evaluate the objectives achieved so that the study methodology can be adjusted to one's goals and development. Guidance meetings are held to support the writing of learning goals and to reflect on achievements - and to generally support the learning process.

The following is generally true for studying in a "problem-based learning environment": instead of the teachers giving the students a task, it is mainly the students that must learn to give themselves the task - and execute it. Each semester theme will form the framework for the tasks/issues that the student can work with, which equates to the framework for the semester's learning goals.

8.8. Student activity/presence/ Study start test

The pedagogical principle is predominantly based on project-organized teaching, where students both work in student groups with 2-3 individuals as well as individually.

The student's possibilities for optimal learning are therefore heavily dependent on creating a "learning environment" and "a learning organization" in each classroom. For this to happen, one must stress the importance of the student being "active", and this means being present and participating with one's fellow students during both the teaching of theory and in teamwork tasks.

A Study start test is carried out after about six weeks study, partly ensure the student is active, partly to introduce tools for ongoing self-reflection of own learning.

The test consists of a written reply to the questionnaire and an interview conducted by one or more teachers.

In light of the written replies and the Interview, the lecturers and the school management decide if the test is "passed" or "failed". If the student does not pass, a re-test is carried out after about further 4 weeks study. The student has only two attempts to pass the test.

9. Semester descriptions

Semester descriptions are edited every semester by the team of teachers conducting the classes in the semester. This happens on the basis of a current “terms of reference”, which ensures consistency with the departmental order for the course and existing common agreements between the colleges providing the course in Denmark.

Existing semester descriptions can be downloaded from the following web-address:

[Link to Semester descriptions](#)

10. Student counselling

The college offers and implements guidance of applicants and students. The guidance covers 3 areas: guidance to the course, guidance during the course, and guidance as the course nears its termination.

10.1. Guidance to the course

Prospective students are informed individually and collectively about educational opportunities, admission requirements, admission rules, the course of studies, and about job and business prospects.

10.2. Guidance during the course

Guidance is given individually on matters of a professional, study, economic, social or a personal nature. Student counselling is confidential and counselors act in matters of a private nature, independent of the college's administration.

The guidance counselors and the pedagogical secretariat will give information on practical matters such as wages, taxes, student grants, housing, study-leave, expenses, etc.

The students are given guidance on transfer-options early in the course, especially the possibilities for the Surveying and Mapping Technician Course transfer.

10.3. Guidance as the course nears termination

The guidance here is helpful in the preparation of applications, and coordinates the visits of professional organizations who give information about wages, employment and unemployment insurance and benefits.

11. Merit and further education

11.1. Within the same courses

Full credit is given when transferring from one college to another.

Credit is given for the 1st, 2nd, and 3rd semesters upon transferring from a successfully completed construction technician course to a ATCM course.

11.2. To other courses

After a successfully completed course as an ATCM, 6 semesters credit is given at the commencement of training to MSc.Science.Tech. in Construction and Civil Engineering with specialization in "Construction and

Civil Engineering ", "Construction Management" or "Building Informatics", respectively, at Aalborg University.

Northumbria University Newcastle (<http://www.northumbria.ac.uk/>):

- MSc. Project Management
- MSc. Construction Management

VIA University College offers, in collaboration with 5 other European Universities:

MSc. European Construction <http://departamentos.unican.es/ttop/MASTER/introduction.html>

VIA University College offers superimposed courses to the Structural Engineer Course with the City Engineer, or Civil Engineering specialty option.

Furthermore, after having completed the ATCM Course, there are possibilities for enrolment in several part-time diploma programs including:

- Diploma in Management
- Diploma in Project Management
- Technical Diploma in Maintenance

12. Foreign languages and intercultural skills

English is compulsory in the ATCM Course and is included as an element in the *general core areas*, which means that all students in the course must master English at a certain level.

As the ATCM Course at VIA Campus Horsens and Aarhus is strongly internationally oriented, there are special opportunities, beyond the mandatory, to improve one's language skills, both in the organized teaching offered in the Danish-speaking, as well as in the English-speaking lines - but also through exchange stays all over the world. Outside the teaching schedule, students are able to meet other students from more than 50 nations from around the world and thereby acquire language skills and intercultural competences.

VIA UC tries to motivate students to improve their linguistic and intercultural skills by way of interaction between national and international students through numerous professional and social activities and events.

The students are also invited to build professional and social networks for both the study-related tasks and the more long-term working relationships.

13. Transitional arrangements

None currently