

Curriculum

Lillebaelt Academy of Higher Professional Education

Bachelor of Architectural Technology and Construction Management (ATCM)

Revision 20-01-2014 / Roto

This curriculum also applies to the Bachelor of Architectural Technology and Construction Management Course taught at Lillebaelt Academy

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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.

Responsible for the curriculum at Lillebaelt Academy is Head of Department Gorm Max Gold Mann.

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,
- 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 common part constitutes the framework, regarding academic content, structure and cooperation between the institutions which provide the education Architectural Technology and Construction Management in Denmark.

The institutional section, which describes the framework that was established for the Architectural Technology and Construction Management Course at Lillebaelt Academy.

Special Conditions for Lillebaelt Academy

At all times will there be carried out experiments on the education of Architectural Technology and Construction Management at Lillebaelt Academy. Some of these experiments takes place within the common framework of the curriculum, valid for the five schools.

Therefore there may be deviations from the common framework, but never in a way that the overall Principles for constructing architect training is overridden.

The school committee for training for constructing Architects is also informed and aware of all aspects of the new structures, academic content new and revised forms of learning.

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1. The curriculum's common part - the comprehensive educations

1.1.1. The Bachelor Degree Program of Architectural Technology and Construction Management

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 Work Placement.

1.1.2. 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.

1.2. 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:



2. Legal basis for the courses

2.1.1. Danish legislation

The courses are governed by the following laws and regulations:

- Order No 1147 of 23/10/2014 Vocational Academies of Higher Education Vocational Academy Educational Courses' Departmental Order: Order No. 1521 of 16/12/2013 on academy courses and profession bachelor courses.
- Order No. 935 of 25/08/2014

- The Education Departmental Order: Order No. 715 of 07/07/2009 on the Professional Bachelor Course for Architectural Technology and Construction Management, the Academy Profession Degree for Construction Technician AP, and the Academy Profession Degree for Surveying and Mapping Technician AP.
- The Entry Departmental Order: Order No. 248 of 13/03/2015
- Departmental Order on Examinations: Order No. 1519 of 16/12/2013 on Exams and Evaluations for Professional Higher Education Under the Ministry of Education.
- Departmental Order on Grades and Assessments: Order No. 114 of 03/02/2015 on the grade scale and other assessments.
- Departmental Order on Open Learning: Order No. 64 of 21/01/2015 on Vocational Basic Training and Higher Education (further education systems) for Adults.
- The Guidance Departmental Order: Order No. 876 of 07/07/2010

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.

2.2. Other bases

2.2.1.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

2.2.2. The Danish Qualification 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.

2.2.3. 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.

3. 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	Rating
ATCM, CT	1 st Semester	Internal evaluation	Pass / Fail
ATCM, CT	2 nd Semester	External Exam	Grade
ATCM, CT	3 rd Semester	Internal Exam	Grade
ATCM	4 th Semester	Internal Exam	Grade
СТ	4 th Semester Internship	Internal Exam	Pass / Fail
СТ	4 th Semester Final Project	External Exam	Grade
ATCM	5 th Semester	Internal Exam	Grade
ATCM	6 th Semester Internship	Internal Exam	Pass / Fail
ATCM	7 th Semester Dissertation	External Exam	Grade
ATCM	7 th Semester Final Project	External Exam	Grade

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.

3.1. Mandatory tests and exams

For education to Architectural Technology and Construction Management on Lillebælt Academy has prepared the Examination Rules (see further examination rules at EAL's website)

3.2. Special test conditions

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

3.3. Exam Languages

The tests must be sat on understandable Danish/English.

3.4. 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 reexamination, if you failed the ordinary examination or for reasons as stated above have not participated.
- Withdrawal from an exam is not possible.

3.5. Illness

- 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 Lillebaelt Academy, 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
- 3. 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.
- 4. 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.

3.6. Cheating on Exams

Disturbing behaviour and cheating in exams

It is considered cheating when an examinee during exams

- receives unauthorised assistance or
- 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 other special circumstances preventing a candidate from attending the test will be dealt with at Lillebaelt Academy. 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

- 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 obligated 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 question. 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 nonpermitted 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 Lillebaelt Academy, including all participation in classes and exams. The suspension entails that the student is excluded from participating in all activities at Lillebaelt Academy, including all participating in all activities at Lillebaelt Academy, including all participating in all activities at Lillebaelt Academy, 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 Lillebaelt Academy 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.

3.7. Complaints

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. 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.

3.8. 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:

- 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 pplication 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,
- 6) and 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
- 5) assess the business and organizational issues, and
- 6) 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
- 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

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

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.

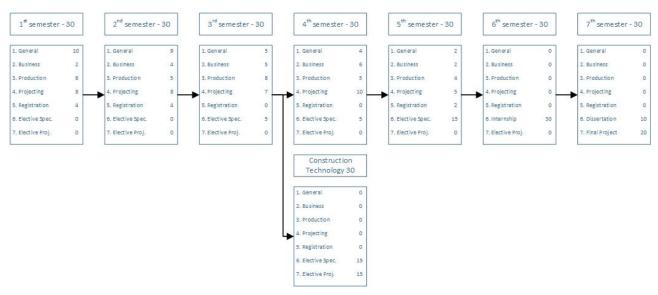
Competences

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.

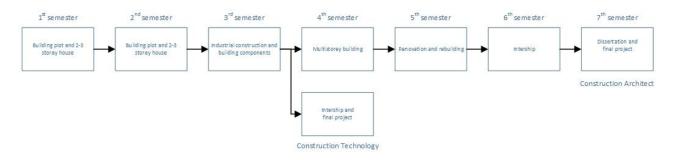
5.6. Overview of ECTS credits distributed over the semesters

The core areas are distributed as follows over the semesters:



5.7. 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:



5.8. The individual course elements' (semesters') content

5.8.1.1st Semester

Theme: Building plot and 2-3 storey house

Knowledge:

At the end of the 1st semester the student must have obtained:

- Have learned and be able to reflect on basic theoretical and technical disciplines and relevant documentation of the profession.
- Have learned and be able to reflect on methods and practice used in planning and management and collaborative working and learning.
- Have learned general mathematical principles important to the profession.
- Have learned and understood common building practices related to the 1st semester project theme.
- Have learned common methods of communication, tools and standards related to the 1st semester project theme.
- Have learned about relevant laws and regulations.
- Have learned how to gather data related to project assignments and local authority applications and the preparation of geographical documentation.

Skills:

At the end of the 1st semester the student must be able to:

- Know about the trade's parties, the professional areas and have insight into the building
 processes related to the 1st semester project theme.
- Be able to use planning and design methods for a 1-2 storey house and methods involved in the planning of the building process.
- Have gained initial skills in applying methods and tools for the collection and analysis of information relevant to the profession.
- Be able to communicate practical and profession related problems to those professionally involved in the 1st semester project theme.

Competences:

At the end of the 1st semester the student must have obtained:

- Be able to prepare relevant construction and documentation materials related to the 1st semester project theme.
- Be able to understand the interrelation of the various subject disciplines in problems related to the 1st semester project theme.
- Be able to identify what they still need to learn on the basis of the knowledge, skills and competences acquired during the semester.

5.8.2.2nd Semester

Theme: Building plot and 2-3 storey house

Knowledge:

At the end of the 2nd semester the student must have obtained:

- have knowledge about and be able to reflect on common constructions, planning & management tools, technical installations, static
- principles and documentation for a 2-3 story building.

- have knowledge about and understanding for common execution methodology in the construction process
- have knowledge of common methods of communication, tools and standards connected to the project planning of a 2-3 story building

Skills:

At the end of the 2^{nd} semester the student must be able to:

- apply methods and tools for collecting and analyzing information in relation to the theme
 of the semester.
- evaluate theoretical and practice-oriented problems regarding the project planning of single family houses and substantiate the steps, actions and solutions.
- apply methods in project planning for 2-3 story buildings and apply methods regarding its practical execution
- communicate practice-oriented and professional problems and solutions for (business) partners and users

Competences:

At the end of the 2nd semester the student must have obtained:

- use the acquired knowledge and skills that pertains to the semester theme, to provide documented analysis of the issues relevant to the construction profession with associated solutions.
- in cooperation with others implement the planning and design of a building in relation to the semester theme and explain the principles of the execution

5.8.3.3rd Semester

Theme: Industrial construction and building components

Knowledge:

At the end of the 3rd semester the student must have obtained:

- Knowledge about and be able to reflect on constructions, planning and management tools, technical installations, static principles and documentation related to the semester theme.
- Knowledge about and understanding of industrial production and the methodology of execution in the construction process and to reflect on these.
- Knowledge about common communication methods, tools and standards related to the semester theme.

Skills:

At the end of the 3rd semester the student must be able to:

- Use methods and tools for collecting and analysing information in relation to the semester theme.
- Use professional project and design methods for industrial construction as well as be able to organize the production and building process.
- Evaluate theoretical and practice oriented problems regarding industrial construction and substantiate the chosen actions and solutions.
- Disseminate practice oriented and professional problems and solutions to business partners and users.

Competences:

At the end of the 3rd semester the student must have obtained:

- Use the acquired knowledge and skills, which relate to the semester theme to provide a documented analysis of problems relevant to professional construction.
- Create new solutions within construction design with a view to optimization of the production.

5.8.4.4th Semester

Theme: Multi-storey building

Knowledge:

At the end of the 4th semester the student must have obtained:

- knowledge about and be able to reflect on constructions, planning and management tools, technical installations, static principles and documentation about multi-storey buildings with housing and industry.
- knowledge about and understanding of common production and execution methods within multi-storey buildings with housing and industry, and be able to reflect on these.
- knowledge about common communication methods, tools and standards in connection with the planning of multi-storey buildings with housing and industry.

Skills:

At the end of the 4th semester the student must be able to:

- apply professional planning methods to multi-storey buildings with housing and industry, and apply methods for planning its practical execution.
- evaluate different methods and approaches, and make a substantiated choice.
- communicate the chosen methods and technical solutions to relevant partners.

Competences:

At the end of the 4th semester the student must have obtained:

- prepare relevant analysis and documentation material for the practical execution of multistorey buildings with housing and industry
- manage and complete the planning and production process of a multi-storey building with housing and industry, with regard for societal and technological conditions.

5.8.5.5th Semester

Theme: Renovation and rebuilding

Knowledge:

At the end of the 5th semester the student must have obtained:

- knowledge about and be able to reflect on constructions, planning and management tools, technical installations, static principles and documentation in relation to renovation and rebuilding.
- knowledge about and understanding for common planning and execution methods in relation to renovation and reconstruction tasks.
- knowledge about common communication methods, tools and standards in connection with renovation and reconstruction tasks.

Skills:

At the end of the 5th semester the student must be able to:

- apply methods and tools for gathering and analysing information in relation to renovation and reconstruction
- evaluate theoretical and practical issues regarding renovation and reconstruction of buildings, and make substantiated choices.
- apply specific methods of design for renovation and reconstruction, and also to apply methods for planning the execution of the work.
- communicate practical and professional issues and solutions to partners and users.

Competences:

At the end of the 5th semester the student must have obtained:

- apply the acquired knowledge, and the skills related to the topic of the semester, concerning documented analysis relevant to the issues with appertaining solutions.
- manage and complete the planning and production process of a renovation and reconstruction task with regard for societal and technological conditions.

5.8.6.6th Semester

Theme: Internship

Knowledge:

At the end of the 6th semester the student must have obtained:

- Knowledge about and be able to reflect on the practical work which the trade involves in the company.
- Knowledge about the organizational, economical, administrative, social and work-related conditions of the company.

Skills:

At the end of the 6th semester the student must be able to:

- Work with professionally relevant problems within the area of the trade.
- Work independently or in cooperation with others in order to solve theoretical and practical assignments in the company.

Competences:

At the end of the 6th semester the student must have obtained:

 Competences in connection with translating the key areas of the study programme to the work with theoretical and practical assignments.

5.8.7.7th Semester

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

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 dessertaion, 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.

6. The curriculum's institutional section

6.1. Elective course elements

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

- 3rd Semester 5 ECTS credits There will be offered 2-3 electives.
- 4th Semester 5 ECTS credits There will be offered 2-3 electives.
- 5th Semester 15 ECTS credits There will be offered 2-3 electives.
- 7th Semester 10 ECTS credits Dissertation

The elective course elements' elective part is based on the mandatory part and aims at giving the students the opportunity to tone 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 Lillebaelt Academy, students may principally choose to tone their education through 2 main directions:

- design
- execution

Elective courses in the 3rd, 4th and 5th semester:

In the 3rd, 4th and 5th semester, students are offered 2-3 elective courses in the design or execution course.

In the 3rd and 4th semester the elective course is located in the last three weeks of the semester. The 5th semester the elective course can either be distributed throughout the semester or the elective course may include half of the semester.

The contents of the individual elective courses is shown in the semester descriptions for the 3^{rd} , 4^{th} and 5^{th} semester.

The descriptions include the purpose of the course, one aim description of the subject, its contents, the literature and the examination form.

Elective part in the 7th semester:

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.

In the semester description is a detailed description of the contents of the 7th semester.

6.2. Internship 6th semester

The Work Placement in the Architectural Technology and Construction Management is placed in the 6th Semester and represents 30 ECTS credits corresponding to 20 weeks. The internship is mandatory.

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

At the Lillebaelt Academy all relevant information for the internship at Architectural Technology and Construction Management and Construction Technologies program gathered in a training manual (EAL's website)

6.2.1.Exchange Semester

Architectural Technology and Construction Management in all semesters

As a student at Lillebaelt Academy have the opportunity to attend one semester at an international university or get an internship in a foreign company.

For details regarding the various forms of exchange semesters appears from the Academys website.

6.3. Pedagogy and learning methods

6.3.1. The physical settings

On the Constructing architect education, we want the students to have the opportunity to be physically present on campus, even when there is no scheduled activities. Therefore, we try to create the best possible physical environment for the study. Each student has his own workplace consisting of a table that he/she can raise or lower as required, a desktop PC and a bookcase.

Learning Design

Each semester includes a theme, as indicated on the model in the previous paragraph 0.4. These themes ensures that there is a progression in learning and in the studio. Based on each theme an interdisciplinary / multidisciplinary project assignment is made.

Problem-based learning

The overall educational starting point on Constructing Architects education is the concept of Problem Based Learning.

If that is the characteristic of PBL, that it is precisely that a problem is the starting point for the learning process in the process, it is thus suggested that quite a number of methods can function in a PBL concept.

A problem can be represented in many ways, in many arraying and with varied degrees of complexity, and consequently one can work with different types of problems in different methodological approaches.

Methodological approaches:

CASE describing a real-life problem described, more or less comprehensive and more or less closed, providing opportunity for the students to analyze, problematize and identify options.

PROJECT WORK typically based on a problem which participants perceive as socially and personally relevant and which are processed or resolved through a shorter or longer projects.

FIELD WORK organized as it is to collect, classify and process empirical data related to a specific problem situation.

CASE BASED LECTURE, where students have the opportunity to discuss the case before the lecture, whereby the students are more focused during the lecture.

ROLE PLAY, where the students are assigned different roles in a situation oriented conflict games etc., Whereby the problems that are going on, will be the driving force in the learning process. STUDY ASSIGNMENTS, which may take the form of group tasks, and where the challenge is to consolidate, deepen and problematize a particular substance.

STRATEGY TASKS, based in eg a 'user problem "that must be solved.

PROBLEM TASKS, which focuses on one or more problems from the profession, the students must find solutions.

More specific methods could be mentioned, but as it appears, it is common to all methods that work with problem solving in a way so that relevant issues from the profession are reflected, and so that the students through the way to deal with the problems at the same time learn something about scientific methods.

The students meet all the above types of methods and types of tasks through the study.

Profession Learning

Profession Learning the methods and learning contexts teachers use to develop students professional knowledge and professional formation. So when, where and how students learn, to

acquire profession-professionalism and professions formation. Contexts for professional learning can be different types of learning contexts or learning:

- Dissemination room where communication and dialogue about new material is the key.
- **Exercise room**, where students ponders and implement new knowledge and skills, typically through processing profession relevant exercises.
- **The project room** where students in groups working on different cases or projects typically interdisciplinary and near the profession field's challenges.
- Internship room where students are being trained.
- **Guidance room** where students tutored in assignments, internships etc.
- Students' own studio room where the students on their own and / or in study groups preparing to study, guidance and training.

The various rooms allow different learning and participation forms, surveys and thematisations of the profession professionalism and formation that the students must acquire.

Central teaching genres of the Constructing Architects education is:

- Theoretical teaching in which key concepts and methods of dissemination.
- Discussion, which is debated concerning profession relevant themes.
- Exercises where specific skills and procedures trained, design analyzes.
- Studies in which students through projects, internships and field studies themselves create new knowledge.
- Articulation, situations and tasks where students are encouraged to express their knowledge, attitude and skills around the profession relevant themes.

New technology is a vital driving force in the development of new learning contexts and new didactic design - and thus new paths for professional learning.

An important use potential of the new technologies is that they can establish new learning in the classroom. Teaching no longer need to be situated physically with students and teachers in the same room and at the same time.

6.4. Study Activity / Presence

The teaching and pedagogy based on problem-based learning where students preferably working together in small groups or individually. For each student gets the benefits of group work, it is essential that each member of the group is actively studying and participating in the group.

7. Semester descriptions

Semester descriptions are descriptions of the individual subjects and their interdependencies. These descriptions updated prior to each semester and descriptions are available on Fronter.com/eal.

8. Student counselling

The school offers and implements the guidance of applicants and students. The guide covers 3 areas: Guide to the study - the study and the study's final phase.

8.1.1. 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.

8.1.2. 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.

8.1.3. 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.

9. Merit and further education

9.1.1. Within the same courses

For students who leave the program without having completed the school shall issue documentation for passed parts of the program. These are equivalent to corresponding disciplines / course elements at other institutions providing education.

9.1.2. Merit when switching from another Danish or foreign higher education

The school can, after a professional assessment, approve completed / passed educational elements from another Danish or foreign higher education in lieu of educational elements included in this curriculum.

9.1.3. Merit in connection with enrollment at another Danish or foreign higher training after Constructing Architect program is passed

Constructor schools in Denmark have entered into a credit transfer agreement with Aalborg University. Under the agreement, a graduated Bachelor of Building Construction admission to the university's graduate program in Civil Engineering at the 7th - 10th semester under the frame for combination programs, cand. scient.

This means that a graduate constructing architect after further two years of study will have the title of Master of Science Tech. in Civil Engineering. Offered currently in 3 areas: Construction Management, Building Informatics and builders and construction.

Construction Management, Lillebaelt Academy, has entered into a credit arrangement with Odense Teknikum, Building direction. According to the agreement, a graduate constructing architect could obtain one year's credit in the Bachelor of Engineering programs. For details, see the curriculum of Bachelor of Engineering University of Southern Denmark.

9.1.4. Merit for subjects which have been passed on a different education

There can be given credit for professional courses, etc., If the student has passed a similar course at another education.

It is a condition of the credit transfer that the content of the courses / subjects course, which is conducted on a different education, is level and the extent to which the discipline, which credit is sought.

9.1.5. How to achieve the merit

Students wishing to obtain credit transfer should contact the student counselor with the necessary documentation to have completed a similar subject / subject's course. The documentation must be in the form of diplomas / module certificate indicating that the person has completed and passed the relevant subject / module.

The student counselor will assess and notify the results to the students.

If there are doubts about whether the contents of the exam / module corresponds to the same module by Constructing Architects education in Odense, a teacher with special expertise in the field assesses, along with the students, which elements of the module, the student must take - and to grant credit transfer for the remainder of the content.

If in doubt then all teachers with special expertise in the field, will be contacted.

Information concerning. credit transfer is sent to study secretary who registers this.

9.1.6. Complaints

If the student does not obtain the required credit transfer, they can complain to the head of department, who then determines whether it has taken a correct decision. The complaint must be in writing and accompanied by relevant documentation that shows that the student has completed and passed a similar subject / module as which credit is sought.

The student then receives the result.

9.1.7. Foreign language

On the 1st and 2nd semester students can choose between two languages - English and German. This training is compulsory and is included in the core area "General".

Since the department also has an international line, it is also possible that Danish students can choose to take completely or parts of the program in English.

9.1.8. Transitional arrangements

There currently no transitional arrangements.