The Curriculum for
Bachelor of Science in Engineering (Engineering, Innovation and Business)

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Academic Study Board of the Faculty of Engineering
Programme titles:
- Bachelor i Engineering, Innovation and Business
- Bachelor of Science in Engineering (Engineering, Innovation and Business)

ECTS value: 180
Cities: Soenderborg
Semesters: Autumn

Effective date: 01-09-2021
Applicable for students enrolled: 01-09-2020

Version: Archive

§ 1 - Description of the Programme

§ 1.1 - Applicable for students enrolled
01-09-2020

§ 1.2 - Aim of Programme, including any professional profile and specialisations
The purpose of the bachelor's programme is to

- introduce the student to the scientific disciplines of the academic area, including the theory and methodology of the area, to provide the student with a broad professional insight and comprehensive skills,
- provide the student with the professional knowledge and the theoretical and methodical qualifications to enable him or her to independently identify, formulate and solve complex problems within the relevant constituent disciplines of the academic area,
- provide the student with the basis for performing vocational functions and qualify for admission to a Master's programme.

The bachelor's programme is an independent, complete programme which is planned to guarantee academic coherence and progression. Thanks to the structure of the programme, the student will be able to choose between a number of master's programmes or complete his/her bachelor's programme after attaining professional skills of immediate value on the labour market.

The bachelor's programme is full-time programme rated at 180 ECTS points, corresponding to the work of a full-time student for 34 months; for programmes starting in the spring semester, however, the duration is 36 months. The programme consists of constituent components, other mandatory components, including supporting subjects, and includes the scientific theory of the academic area, elective courses as well as a Bachelor Project.

§ 1.3 - Didactic and pedagogical basis
The Engineering Education Model of the University of Southern Denmark
The bachelor and master's programmes within the scientific area of engineering are research-based full-degree programmes, which qualify the students to independently perform vocational functions on the basis of knowledge and methodical skills within their professional area.

All programmes at the University of Southern Denmark are structured in accordance with the university's leading education principles for programmes. For engineering programmes, the principles are put into practice in the educational concept 'The Engineering Education Model of the University of Southern Denmark' or, in Danish, 'Den Syddanske Model for Ingeniøruddannelser', in the following referred to by its official abbreviation, DSMI.

By offering and implementing engineering programmes based on DSMI, the university ensures that engineers who have recently graduated from the University have a high professional standard, based on their mastery of a range of core skills, which are in high demand on the labour market as well as in the research community.

Below is shown a summary of the main points of the education concept - the complete description of DSMI is available in electronic form at the website of the Faculty of Engineering.

Content and Skills

- Professional skills are at the centre of the educational activities, and all engineering programmes at the University of Southern Denmark are therefore rooted in research and development environments at a high international standard. Research and development-based tuition is provided at all programme levelse to accommodate both the needs of fundamental research and the requirements of practical applied science in close collaboration with business and industry.
- The programmes aim to foster modern, dyed-in-the-wool engineers. The learning and evaluation environment is therefore based on activating tuition and active learning that stimulates students to think and work in a problem-focused, project-oriented and cross-disciplinary manner. Assignments are accomplished both in teams and independently, and the focus is on innovation and reflection.
- The programmes aim to facilitate the students' development towards being able to accomplish assignments in international contexts. Throughout their studies, the students work in an environment with international lecturers and scientists as well as international fellow students, and in the course of their studies, they are also required to participate in dedicated project groups working across linguistic and cultural boundaries. The programme structure is designed to support studies abroad.
- To enhance the graduates' labour market value immediately after graduation, the programmes intercorporate a high level of business relevance, ensured mainly via collaboration with external companies. These activities guarantee that the students' professional skills are put to regular use in a concrete, contemporary context.
- All students are encouraged to think and practice entrepreneurship - specifically through the corporate and business understanding integrated in the programme - and more generally through a learning and evaluation environment designed to stimulate student enterprise, creativity and responsibility.
- In the course of their studies, all students with at least once collaborate with students from other engineering disciplines or other educational programmes on the solution of a complex, interdisciplinary problem in close collaboration with an external organisation. This interdisciplinary collaboration is organised on the basis of a principle of 'Experts in Team Innovation'

Structure and Learning Environment

In overall terms, the interplay between programme structure, skills acquisition and the learning and evaluation environment of the engineering programmes at the University of Southern Denmark may be described as follows:

- In the practical planning of the programme content, significant emphasis has been placed on ensuring that the forms of tuition and examination are both relevant and contemporary and support the students' acquisition of core skills. In doing so, efforts are made to provide a highly dynamic study environment, where each individual student is expected to play an active role and assume responsibility for his or her own learning. The student will 'learn to learn' so that he or she will later be able to quickly embrace new and complex problems, just as the student will be encouraged throughout the programme to practice both independent and co-operative thinking.
- In order to strengthen both the professional contemplation and application of acquired skills as well as the individual's continued motivation for developing professionally and personally on a labour market characterised by rapid change, the educational concept deliberately seeks to integrate both specific technical and broader general engineering skills.
- With DSMI, the University of Southern Denmark offers an attractive and relevant study programme with good immediate work prospects. The keywords are activating teaching and active learning put into practice through project-oriented collaboration and problem-based learning. The purpose is to foster dyed-in-the-wool engineers with a high level of professional skills and the optimum basis for continued personal and professional development.

§ 3 - Detailed programme specific information

§ 3 - Programme title and profiles

Bachelor i ingeniørvidenskab (Teknik, Innovation og Erhverv) 2020

Name
Bachelor i ingeniørvidenskab (Teknik, Innovation og Erhverv) 2020

Competence profile
The study programme enables the students to handle the process from exploring and discovering new ideas to prototyping, manufacturing, and finally implementing a business case . The bachelor student is trained in fundamentals of engineering, innovation management, operations management and business development as well as project management techniques and tools.
The graduate will acquire the following overall knowledge, skills and competencies

Knowledge:
A: Has a solid understanding of the interplay between traditional engineering disciplines – mechanics, electronics and software.
B: Posesses knowledge about central theories and models within the subject fields of mechatronic product development and production, innovation management, entrepreneurship and business development.
C: Has knowledge about relevant methodologies within the subject fields of mechatronic product development and production, innovation management, entrepreneurship and business development.
D: Understands how theories and methodologies are applied in practice and in industrial settings and can reflect upon their use.

Skills:
A: Is able to apply specific skils in mechanical engineering. The ability to develop functioning prototypes using 3D CAD design and choosing the relevant materials and corresponding processes.
B: Is able to apply specific skills in electronics engineering. The ability to develop fully functional prototypes using analog circuits for signal conditioning.

C: Is able to apply specific skills in embedded design. The ability to develop prototypes based on microcontrollers and peripheral components for interfacing, as well as developing simple embedded programs using a high-level language and the corresponding development methods.
D: Is able to apply product development techniques, project management methods and other working methods as well as social competences complementing the education towards excellent product- and production-driven entrepreneurship.
E: Basic creativity and innovation management skills, which allow generating, evaluating, selecting, and realizing product and production related inventions. This encompasses creativity methods, moderator trainings and business case building.
F: Is able to form groups based on different techniques that can work successfully towards a goal.
G: Is able to argue for their theoretical focus and choice of methods and the consequences for their proposed solutions.
H: Is able to communicate academic results within the university as well as to other external stakeholders and partners who are not experts in the field.

Competencies:
A: Has the competences to initiate, develop and manage innovation projects or start-ups that involve many different stakeholders and different disciplines.
B: Has the competences to engage in interdisciplinary project work within the university as well as with partners outside the university such as companies, venture capitalists, or other financial or legal institutions.
C: Has the competences to identify the relevant knowledge to complete a business start-up and acquire the needed knowledge within a relevant network.

The relationship between the overall competency goals of the programme and the learning objectives of the individual courses appears in the qualification matrix (annex 1).

Professional competence
The study programme Bachelor of Science in Engineering (Engineering, Innovation and Business) combines mechatronics, innovation and business. The graduate is a business-oriented engineer who can discover and create new products and optimize production set-ups for the factory of the future. The graduate has special core competencies in:

•Mechatronics (mechanics, electronics and programming skills)

•Operation management and simulation

•Creativity skills for developing new product ideas and production set-ups

•Innovation management

•Technology Entrepreneurship and business development

•Project management, team-work and professional roles

•Academic writing and research methods

These competences enable the graduate to work in various jobs, especially in interdisciplinary and cross-functional job functions. Jobs where the combination of both engineering and business competencies are utilized. Understanding the process from development of new ideas, developing physical and virtual prototypes of products and production systems, testing to finally writing a business plan makes the graduate an important link between various functions and specialists within an organization. Emphasizing the international dimension during the education creates opportunities in global job functions. Further, the programme has the intention to support the creation of new start-ups and students could therefore also pursue a carreer as an independent technology entrepreneur. Possible job profiles for a graduate are:

•Project manager

•Product or business development manager

•Technology manager

•International product manager

•Entrepreneur – start up of own business

•Intrapreneur /business developer – start up new business areas in existing companies

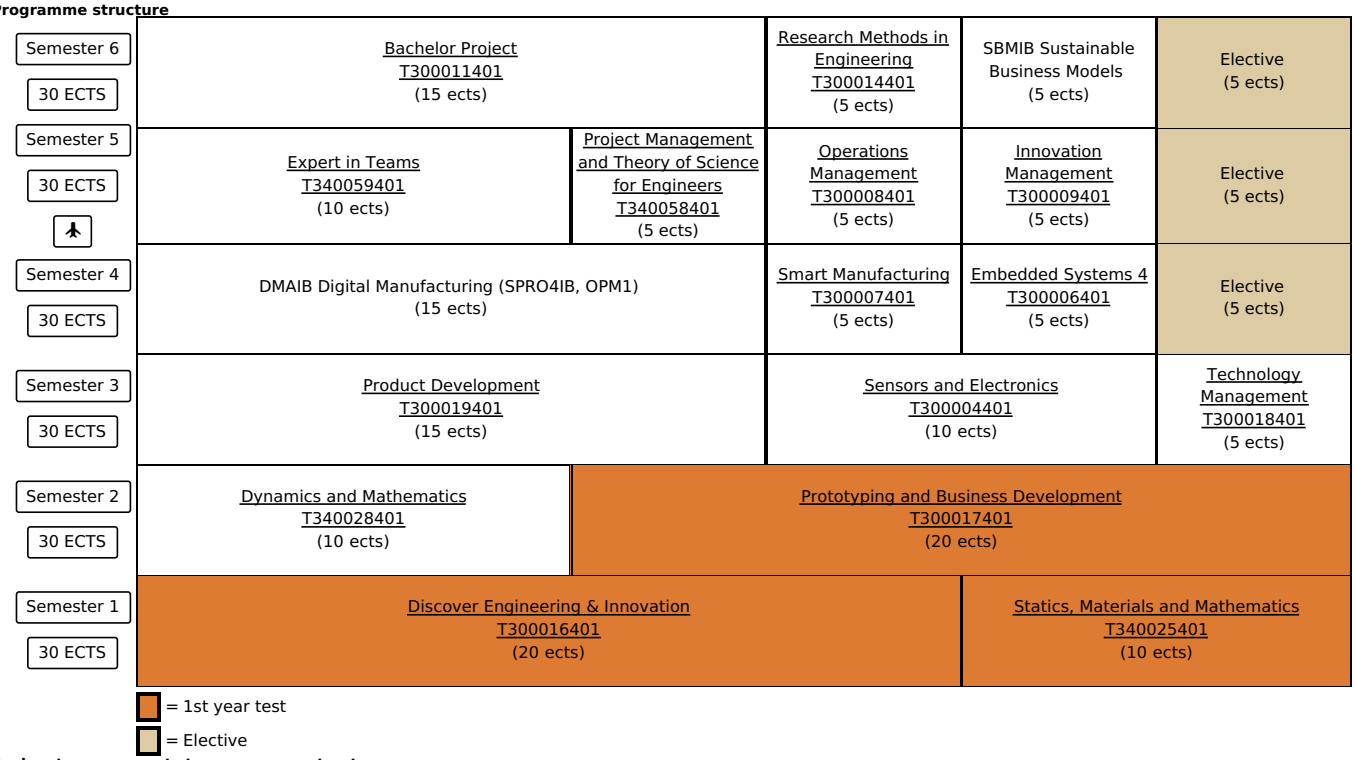
•Innovation consultant

Internationalisation
Internationalisation
3.0.1.1 The 5th semester of the bachelor's programme has been designed to give the programme an international aspect in the form of a student exchange abroad or participation in an internationalization course at the University of Southern Denmark.

3.0.1.2 The 5th semester can be taken as a pre-approved student exchange at one of the partner universities that SDU has agreements with or as an individually arranged student exchange. It is a requirement that the academic content of the courses taken and passed whilst studying abroad corresponds to the academic content of the 5th semester of the applicable study programme. Alternatively, the 5th semester can be taken by participating in the educational activities included in 5th semester of the applicable bachelor's programme (Internationalisation at Home). The courses included in the 5th semester have been adapted to include an international perspective, e.g. as an integral part of the academic content or as part of a project/group work, etc., in collaboration with international students.

Reading Texts in Foreign Languages
3.0.2.1 As of 5th semester of the bachelor'r programmes, tuition is given mostly or wholly in English. In addition, literature in English and tuition conducted in English can be expected as early as in the 1st semester.

Programme structure



Explanatory comments to programme structure
Students must pass a study start test within the first two weeks of studies in order to continue on their programme. The purpose of the test is to verify that the students have started their studies.

Workshop training is included during the first year. The workshop training is mandatory and assessed on a pass / fail basis.

Students are encouraged to complete the fifth semester at a foreign university. Please note that the courses must be approved by the Academic Study Board of the Faculty of Engineering.

Cities
Soenderborg

Language
English

§ 3.1 - The structure of the programme
The progression of the innovation and business engineer are built around topics from six subject columns:

• Entrepreneurship/intrapreneurship – Market research and business development

• Entrepreneurship/intrapreneurship - creativity, design, technology and innovation management

• Technology – fundamentals of engineering

• Technology – mechatronics design, prototyping and development

• Technology – manufacturing set-up

• Academic writing skills, research methods, team-work and project mangement

• Specialization / electives

The academic topics are interlinked during the individual semesters by semester themes. Throughout the course of study, students continually acquire the necessary academic knowledge, while at the same time gaining personal competencies. The columns include the following subjects and disciplines:

Entrepreneurship/intrapreneruship - Market research and business development
Consists principally of the academic fields: Business Development (BDE) and Sustainable Business Models (SBM) with the following principal content:

BDE: The course BDE gives students knowledge and skills in business administration and venture creation. Understanding how businesses are organized and operated is a central element in this course. In relation to venture creation eg. New start-ups, market research methods are trained with the purpose of collecting market related information used to sustain a business case.
SBM: The concepts of a circular economy, The triple top-line, a new business paradigm, New opportunities for local content as a business driver, The role of business in the quality driven society, Creating a positive agenda for prosperity, Environment, Society and Governance as business drivers, How to use KPIs as a measure of success introducing a new business model, The concept of inclusive business as a new business model.

Progression in this subject column happens through the student's ability to first understand and apply existing theory and models and later on develop new solutions to existing problems in business.

Entrepreneurship/intrapreneurship – creativity, design and technology and innovation management:
Consists principally of the academic fields: Innovation and creativity (INC) Technology Management (TEMAIB), Production Technology (PTECH) and Innovation Management (INMIB), with the following principal content:

INC:The goal is to train the student's creative process, creativity techniques and basic prototyping skills. Following the creative process, the student become familiar with the use of these techniques, connecting technology and use.
TEMAIB: This course provides an overview on the core concepts of technology management and the challenges that emerging technologies pose organizations. The course provides conceptual frameworks of technology management as well as insights from recent academic research on technology management. The course will combine lectures and case-based teaching. The theoretical concepts taught in the lecture will be applied to cases that are discussed jointly with the instructor in the classroom.
PTECH: This course introduces different production processes and technologies to enable students of evaluating how products have been produced. The evaluation is based on the choice of materials, processes and the search for feasibility while navigating cost, quality and sustainability challenges. The course is split in theoretical and practical exercises and visits in production companies.
INMIB: Models of Innovation, The underpinnings of profits: Assets, competences and knowledge, Sources and transfer of innovation, Recognizing the potential of an innovation, Reducing uncertainty: the role of technological trends, market regularities and innovation strategy, Choosing a profit site: Dynamic competitive analysis, Strategies for sustaining profits, Innovation audits.

Progression in this subject column happens through the student's ability to progress from discovering and creating new ideas to developing prototypes.

Technology – fundamentals of engineering:
Consists principally of the academic fields: MATH1 and MATH2 with the following principal content:

MATH1: Integration techniques; Differentiation techniques; Taylor and Maclaurin series; Functions of several variables; Differential equations; Vectoral algebra and matrices.
MATH2: Complex numbers; Laplace transformation; Fourier series; Data handling.

Progression through this column enhances the student´s ability to understand the underlying physical circumstances and to use the relevant mathematical models in an engineering context.

Technology – mechatronics design and development:
Consists principally of the academic fields: Mechanical Design (DES), Mechanics 1 (MECH1), Mechanics 2 (MECH2), Sensors and Actuators (SAA), Electronics (ELEC), Embedded Systems 1 (EMB1) and Embedded Systems 2 (EMB2) with the following principal content:

DES: Modelling with primitive solid elements; Modelling with parametric solid elements; Modelling with curves and sketches; 3D assembly modelling with solid components; Design of technical drawings with section views and dimensions including tolerances; Making technical drawings on the basis of a 3D assembly model; Making an exploded view on the basis of a 3D assembly model; Making a parts list on the basis of a 3D assembly model.
MECH1: Forces and couples; Isolation of mechanical systems made up of one or more solids; Dry friction; Torsion of circular members; Internal effects; Design of beams for bending; Mechanical material parameters for metals and polymers; Electromagnetic material parameters; Thermal Properties.
MECH2: Absolut speed and acceleration; Coordinate systems; General equations of motion; Translation; Fixed-axis rotation; Work and energy; Linear Momentum
SAA: Sensor characterisation; Accuracy and error estimation; Basic understanding of semiconductor materials; Electromechanical, thermal, radiation and electromagnetic transducers; Simple actuators.
ELEC: A/D and D/A converters; Operational amplifiers; Feedback; Diodes; Bipolar junction transis-tors; FET transistors; Transistor used as a switch; Computer simulations; Methods for EMC correct circuits.
EMB1: Numbering systems; Programming in C, including: simple data types, control structures, functions, arrays, structs, pointers, bitwise operators, microcontroller systems.
EMB2: Logic components; Boolean algebra; Latches and flip-flops; State machines; Microcontroller hardware; Peripherals, Interrupt system, Embedded software

Progression through this column enhances the student's ability to develop mechanical components and mechatronic products and systems, based on mechanics, electronics and embedded technologies.

Technology – manufacturing set-up
Consists principally of the academic fields: Operations Management 1 and 2 (OPM1 and 2), Smart Manufacturing (SMM) with the following principal content:

OPM1: Integrated Product Development, Manufacturing Strategy and Concepts, Factory Planning - Layout Strategy, Capacity planning, Material Requirement Planning MRP to ERP Shop Floor Control. Lean Manufacturing and Management, Value Stream mapping, Flow oriented manufacturing, Just in Time – Kanban, Standardized work, Visual Management, Computer simulation of manufacturing concepts- and logistics systems, Simulation methods, Discrete/continuous simulation, Stochastic simulation.
OPM2: Operations Strategy, Supply Chain Management, Quality Management, Statistical Process Control, and Sustainable operations
SMM: Product life cycle management – PLM, Automation and digitalization, Industry 4.0 enabling technologies (VR/AR, collaborative robots, simulation, AM-generative design, IOT, Big data); Sustainable Manufacturing; Simulation to digital twins, Operator 4.0, Cradle to Cradle thinking.

Progression through this column enhances the student's ability to understand and work with the product life management from design through engineering to operation. The students will get experience in developing lean automation solutions, where digitalization plays a major role.

Academic writing skills, research methods, team-work and project mangement
Consists principally of the academic fields: Semester Project 1 (SPRO1IB), Semester Project 2 (SPRO2IB), Semester Project 3 (SPRO3IB), Semester Project 4 (SPRO4IB), Experts in Teams (MC-EXS), Research methods in Engineering (RME), Project Management and Theory of Science (PMTS), and the Bachelor Thesis (BPRO) with the following principal content:

SPRO1IB: The students are introduced to the main stages of the innovation process where they based on a theme develop a mock-up / low fidelity prototype for demonstration. The main topics are: Ideation, Concept, Product development, Market and users, Implementation.
SPRO2IB: The students will focus on the front end of the innovation process and analyze application areas, customer and user needs, market attractiveness and technical feasibility. The students are expected to have a proof of concept by the end of the semester. The knowledge, skills and competencies gained in the module will be explored further during the next semester where the proof of concept phase moves into the next stage of prototyping
SPRO3IB: In this semester project students will be involved in prototype development based on either their low fidelity prototype from last semester or a new alternative project idea. The purpose of the project is to prepare the students for the next step in the innovation process where the manufacturing setup is discussed
SPRO4IB: The students be responsible of designing and specifying the entire production facility for a chosen or given product. The production/logistics is simulated. Critical elements of the facility are built in a physical scale model to test the mechatronics components and the functional integration.
MC-EXS: Experts in Teams. The students will be challenged by a complex product development situation. They will work together in large teams in a project with many stakeholders where the ability to cooperate with different people (engineers and non-engineers) and the ability to organize the project as well as the ability to use one's own expertise is a "must" to achieve a satisfying result.
PMTS: Project Management and Theory of Sciences. The students will learn to understand the managerial tasks related to project deliveries in organizations and about the nature of science, the scientific method and the various forms of logical reasoning
RME: The students are developing and advancing their knowledge in specific research approaches. This gives them the ability to develop a research design for their bachelor thesis that is appropriate.
BPRO: The bachelor thesis is a process with the purpose of documenting the students engineering-specific competencies attained during the programme within a limited, course-relevant and engineering-specific subject. The selected problem can be investigated from a theoretical, experimental or a practical point of view.

Progression through the projects enhance and develop personal as well as team related competencies, while at the same time the academic competencies are learned in depth and implemented in real life projects. The personal and team related competencies refer to areas such as: commitment, initiative, responsibility, ethics, and reflection. The academic competencies relate to the area of analysis and assessment of data material, communication of results using approaches that require reflection, cooperation and independency.

Specilization / electives:
Focusing on specific interests and enhancing skills in a certain domain may be done by choosing electives in the fourth, fifth and sixth semesters (15 ECTS points in total). The courses will be in the domain of the MCI research, e.g.: Embedded Control Systems, Dynamic Mechatronic Systems, Innovation Management, Production and manufacturing technologies or innovation practice or in the domain of the social science faculty – e.g. business administration – business management courses.

Description of the 1st Semester
SEMESTER THEME
”Discover Engineering and Innovation ”

VALUE ARGUMENTATION
The interplay between engineering and Innovation is a relevant and complex field that many companies are facing every day. New or modified products and production systems are developed and presented to customers. Innovation processes involves many disciplines and actors and requires specific skills to understand on the one hand the engineering specifics but also the market dynamics and the organization of managing complex development projects.

Therefore, the first semester of the programme confronts the students with the complexity at the meeting point of technology, Science, Innovation and markets.

COMPETENCE GOALS

Knowledge
• The knowledge of the different phases involved in an innovative product development process and their importance and impact on the final result
• Knowledge of the creative and innovative product development process
• Basic understanding of market driven business development
• Knowledge of cost and pricing strategies related to new business development
• An understanding of the financial aspect of new business development
• Knowledge of how to plan and manage a project
• Knowledge on how to structure an academic report
• Knowledge concerning basic methods of creating EMC correct designs
• Profound knowledge of the physics behind selected transducers and actuators
• Knowledge of basic programming technics
• Knowledge of the syntax of a high-level programming language
• A basic knowledge of the steps in design and implementation of embedded software
• The knowledge of machine designs according to DS/ISO standards
• The knowledge to choose the optimal routine to problem solving, with more subjects involved, and stating the reasons for the choice (ex. The choice of an applicable coordinate system)
• Understanding statics of beams and engineering structures
• Understanding of properties of metals and polymers, both mechanically and electrically
• Understanding complications when going into nonlinear regime, both mechanically and magnetically
• Understanding basic calculus and matrix algebra
• Mastering different differentiation and integration techniques
• Using Taylor series, Maclaurin series and differentials for approximations
• Solving simple ordinary differential equations
• Performing basic matrix calculations, matrix inversion, and determining eigenvalues

Skills
• The ability to combine technical-, business- and process knowledge into an innovative development project
• The ability to write documentation and prepare presentations
• The ability to apply preliminary marketing management and market research techniques
• The ability to leverage business administration into the innovation process
• The ability to use specific project management tools
• The ability to search for relevant literature and to apply academic writing standards in report writing
• The ability to choose the optimum sensor with the emphasis on reliability and accuracy
• The ability to analyze smaller programs
• The ablility to design smaller programs from a textual description
• The ability to implement smaller programs
• The ability to make structured tests of smaller programs
• Basic skills in designing by means of a modern 3-dimensional (3D) design tool
• The ability of producing a 3D assembly of a simple mechanical model
• The ability of drawing up technical documentation according to DS/ISO standards as to dimensional tolerances, geometrical tolerances and surface quality
• The ability of making an assembly drawing of a simple mechanical model
• The ability of making an exploded drawing of a simple mechanical model
• The ability of drawing up part lists on the basis of a three-dimensional assembly model
• The ability of estimating materials manufacturing properties and its properties at use
• The ability to distinguish between theory and methods
• The ability to calculate forces, moments, couples of statically determinate structures by use of equilibrium conditions in two dimensions
• The ability to calculate external and internal effects on loaded beams
• The ability to calculate simple deformations (1D) based on simple stresses and material data
• The ability to calculate resistances of simple metal wires based on material data

Competencies
• The ability to consider different strategies to solve 2 dimensional statics problems
• The ability to analyze the statics of simple engineering products
• The ability to select proper materials for given problems
• The ability to master basic mathematics necessary for further engineering studies
• The ability to understand an engineering problem or model described in mathematical terms
• The ability to extract information from a mathematical model of an engineering problem
• The ability to participate in complex projects where technology- and business issues interact
• The ability to work in small teams (4 – 5 members) and the understanding of one’s own impact on the project
• The ability to identify and search for necessary information/knowledge in order to achieve a desired result
• The preliminary understanding of the dynamics of working in teams and how to organize and plan project work
• The understanding of the complexity of projects with stakeholders from outside the team and users involvement
• The ability to present one’s ideas and results to an audience with equal knowledge.
• An entrepreneurial orientation towards market and business development

SEMESTER STRUCTURE
DIB1IB – Discover Innovation and Business (20 ECTS)
MC-SMM – Statics, materials and mathematics (10 ECTS)
DIB1IB and MC-SMM are mandatory and constitute parts of the firstyear examination.

CONTEXT
The academic fields of the 1st semester build upon the entry requirements, especially in relation to mathematics (A-level) and physics (B-level). For instance, this is evident in MATH1 where the student is introduced to further differentiation and integration techniques as well as studying differential equations more advanced as encountered in high school mathematics. In MECH1 the concept of force and Newton’s Laws included in the entry requirements are developed in order to analyze the static equilibrium conditions for mechanical structures.

DIB1IB consists of:
SPRO1IB (10ECTS) – a project work that introduces students to the different fields related to discovering innovation and business. DES (5 ECTS), - Introduces CAD as a usable tool for understanding and developing mechanical drawings and constructing prototypes. EMB1 – Embedded Systems (5 ECTS) contains:
Theory and hands-on exercises in higl level programming for embedded systems. The MC-SMM module contains two academic fields: MECH1 – (5 ECTS): Statics and Materials and MATH1 – (5 ECTS): Calculus and Matrix Algebra.

Description of the 2nd semester
SEMESTER THEME
”Prototyping and Business Development”

VALUE ARGUMENTATION
In complex innovation projects, prototyping activities are seen as a fundamental step in visualizing and confirming features in product design and production set-ups. Prototyping involves users and customers in the development and is an important process to reduce mistakes and costs. In business development prototyping activities play a central role and should be included to develop a more trustworthy business case.

In this semester, students now focus on idea generation and prototyping in regard to selected technologies and they will explore the interplay between technology, customers and use. The students will enhance their knowledge, skills and competencies in the subject columns: mechatronics design and development and fundamentals of engineering and entrepreneurship - creativity, design and innovation management

COMPETENCE GOALS

Knowledge
• Understand the importance of visualizing and producing prototypes for further business development.
• Identify suitable technologies and implement creative ideas on a working prototype level.
• Understand the key concepts and the terminology used in business development and market research
• Understand how businesses are organized and operated
• Understand the market research process and how research designs are formulated

• Understand kinematics and kinetics of particles and rigid bodies
• Understand calculus and statistics

Skills:
• The ability to, from a technical point of view, continuously improve the product/production setup by interacting with key customers or users
• The ability to, from a business point of view, continuously improve the product/production set-up
• The ability to describe, analyse and evaluate key theories, as well as develop hands-on experience with real life cases.
• The ability to determine appropriate data collection methods for a market research study which will be implemented and carried out.
• The ability to collect and analyse data which can be used as input for evaluating business opportunities
• The ability to use creativity techniques in idea generating processes
• The ability to analyze and interpret collected data to be used to create user or customer-oriented products or solutions
• The ability to choose appropriate coordinate systems to analyse the motions of particles and rigid bodies in 2 dimensions

• The ability to calculate position, velocity, acceleration, force, moment of force, linear and angular momentum in particle and rigid body dynamics by use of equations of motion, work-energy relations and conservation theorems
• The ability to understand complex numbers, including their relationship with trigonometric functions. Using Laplace transforms for the solution of ordinary differential equations and using statistics to analyze data sets.

Competencies:
• Competencies in analyzing and assessing the potential of a new product idea, a new technical solution or a new venture.
• Competencies in analyzing the potential of a product or technical solution, conducting solid industry and market research, setting up an organization to run the business and understanding the importance of funding and financing the venture.
• Competencies in creating an argumentation line which can support conclusions
• The ability to consider different strategies to solve 2-dimensional engineering mechanics problems
• The ability to analyse the dynamics of simpler engineering products
• The ability to analyse one-dimensional periodic and semi-infinite problems through the application of Laplace transforms and Fourier series. The ability to handle simple stochastically problems.
• The ability to work in small groups and being aware of one’s own role in every phase of a technical and business-related user-oriented development process
• The ability to turn abstract theory and data into product technology
• The ability to use market market research methods and interpret the results for entrepreneurship
• The ability to setup a product development process

SEMESTER STRUCTURE
PRBDIB Prototyping and Business Development (20 ECTS)
MC-DYM - Dynamics and Mathematics (10 ECTS)
Both modules are mandatory. PRBDIB constitutes part of the firstyear examination, together with the 1st semester modules.

CONTEXT
PRBDIB Prototyping and Business Development contains:
Semester project SPRO2IB (10 ECTS). The focus is on understanding interdependencies between technology and use by drawing on knowledge such as ideationg and early market research in the front end of a development process. INC (5 ECTS) – Concerns creativity, technology and use. BDE (5 ECTS) – The course BDE gives students knowledge and skills in business administration and venture creation.
The MC-DYM module contains two academic fields: MECH2 – (5 ECTS) Dynamics and MATH2 – (5 ECTS) Calculus and Statics

Description of the 3rd Semester
SEMESTER THEME
”Product Development”

VALUE ARGUMENTATION
In order to transform an idea into innovation, a product often need to incorporate a new technology which needs to be developed and managed. Strategies for handling new technologies and product development become important. As part of developing new products product development activities become crucial in weeding out teething problems and in consequently securing a more succesful implementation. In this semester the students will therefore learn about the interlinkage between technology management and product development activities The product development activities are supported by courses in sensors and actuators.

COMPETENCE GOALS
The student will during the semester gain the following:

Knowledge:

• Understand basic concepts in technology management
• Understand the main technological issues in using analog electronics
• Understand the use of sensors and actuators in electronic products
• Understand the functionality of basic components and technologies used in analog electronics
• Understand the basic methods used in development of analog electronics
• Understand the use of sensors in electronic products
• Understanding the fundamentals of frequency characteristics for active and passive filters
• Understand A/D and D/A conversion methods

Skills:
• Develop an understanding of the importance of technology
• Equip students with an understanding of important elements of technology Management (strategic, operational, organizational and process-related aspects)
• Foster a strategic orientation to problem-solving within the innovation process as well as Technology Management and its importance for corporate strategy
• Clarify activities of Technology Management (e.g. technology sourcing, maintenance and exploitation)
• Strengthen essential communication skills and a basic understanding of managerial, organizational and financial issues concerning Technology and R&D Management.
• The ability to find, specify and use existing sensors and actuators as part of a electronic development process
• The ability to build prototypes for proof of concept of specified electronic circuits with the use of sensors and actuators.
• The ability to specify the requirements for a product or production process that will be implemented by the use of electronic circuits.
• The ability to describe, analyze and evaluate key theories of business innovation for quality performance
• The ability to understand and evaluate the economic benefits of lifting value creation from materials flow
• The ability to understand and evaluate the barriers and drivers of converting production-based operations to becoming a service provider delivering performance instead of selling a product.
• The ability to construct analog circuits for interfacing sensors to A/D converters
• The ability to analyze DC- and AC- circuits
• The ability to construct basic passive and active filters
• The ability to measure the frequency response for a given electronic circuit
• The ability to use computer simulations as part of the development of electronic circuits
• The ability to specify the requirements for a product that will be implemented by the use of electronic circuits.
• The ability to do error estimation in a simple system with a sensor and automatic measurement instrumentation

Competencies:
• The ability to apply relevant concepts in the field of technology management
• The ability to analyze the link between technology and firm strategy
• The ability to analyse and solve problems posed by real-life situations in the field of technology management
• The ability to apply concepts and approaches from the field of technology management which are relevant to the problems posed in the real-life cases
• The ability to compare these concepts and create own solutions to the problems presented in the real-life cases
• The ability to communicate solution in oral and written form.
• The ability to specify, and do proof of concept prototyping with analog electronics and the use of existing censors
• The ability to, based on a given specification, develop the required electronic circuit – fulfilling the specification. This includes the ability to choose the relevant technology, methods and components.
• The ability to develop applications using sensors and actuators

SEMESTER STRUCTURE
PDEIB – Product Development (15 ECTS)
SENS – Sensors and Electronics (10 ECTS)
TEMAIB – Technology Management
All the modules are mandatory.

CONTEXT
PDEIB Product Development contains:
SPRO3IB (10 ECTS) - a semester project where students engage in prototype development based on their proof of concept from last semester or an alternative idea. The purpose of the project is to prepare the students for the next step in the innovation process where the manufacturing setup is discussed. PTECH (5 ECTS): introduces different production processes and technologies to enable students of evaluating how products have been produced.
SENS – Sensors and Electronics contains:
ELEC (5 ECTS) concerns analysis and constructions of elctronical systems. SAA (5 ECTS) deals with analysis and constructions of systems with sensors and actuators.
TEMAIB – Technology management (5 ECTS) concerns the core concepts of technology management and its application and linkage to firm strategy

Description of 4th semester
SEMESTER THEME

“Digital Manufacturing”

VALUE ARGUMENTATION
The first three semesters deal with the early phases of new product development also called the fuzzy front end of innovation. This part is often characterized as being less structured and difficult to manage. Usually these phases result in a thourough business case. Upon completion of this part the students move into a more costly part of new product development where decisions regarding manufacturing has to be made. Setting up production for a product often requires heavy investment so students need to understand the complexity of a manufacturing setup and the technological options they have available. Therefore, students should during this semester face the tasks of discussing how a realistic manufacturing set up could be in relation to the product they intend to introduce to the market. In this discussion new digital manufacturing technologies will be included.

The students will during the semester:
• Participate in a project advancing from the prototype level to planning a, logistics/manufacturing set up and the implementation of it
• Simulate and analyse a manufacturing concept including state of the art technologies and be able estimate and plan production
• Generate technical solutions involving intelligent dynamic systems by combining mechanical, electronic and software components

COMPETENCE GOALS

Knowledge
• Knowledge about production philosophies, strategies and operation management
• Understand the market/technology context (regulations, institutions, competitors, etc.)
• To provide students with an understanding of how to go from product idea to a manufacturing concept, in order to enable them to analyze, estimate and plan production
• Obtain an understanding of how to take decisions with respect to economy and manufacturing when purchasing goods, planning manufacturing capacity/resources and planning production processes in detail
• To provide students with an insight in the possibilities of IT support of material and production planning and control
• During operations obtain understanding of material planning, scheduling, shop floor control and how to organize the work environment
• Knowledge of combinational and sequential circuits
• Insight in the function and the architecture of microcontroller systems
• Insight in interface circuits for microcontrollers
• Insight in timer/counter peripherals
• Knowledge of interrupt driven I/O
• Knowledge of hardware/software integration
• Knowledge of simple serial communication
• Understand basic concepts and theories of user centred design

Skills
• Planning and modeling of production facilities
• Design and specification of complex systems (products, production, logistics)
• Writing and presenting a business plan
• The ability to implement simple mechatronic systems for production cells controlled by an embedded system using interrupt driven I/O
• The ability to make a specification for a mechatronic system in a production cell
• To be able to specify the right manufacturing strategy in a global environment, design the factory layout and plan capacity
• The ability to analyze and design combinational and sequential circuits
• The ability to configure and make use of microcontroller peripherals
• The ability to implement programs for embedded systems
• The ability to make structured tests of smaller programs

Competencies:
• Design and specify production equipment and systems
• Design and build specific elements of automation systems
• Economic justification of investments (Return of Investment models etc.)
• The understanding of the correlation between technical specifications for a production cell and the performance of the cell
• The understanding of the correlation between performance of the individual production cells and the overall performance of production facilities
• Advanced modeling and simulation tools will be introduced. The student will be able to simulate, analyze and design the manufacturing environment.
• The ability to, from a given specification, develop an embedded system – fulfilling the specification. This includes the ability to combine microcontroller hardware with software and setting up a system test.
• Reflect on methods development in the light of current litterature

SEMESTER STRUCTURE
DMAIB Digital Manufacturing (15 ECTS)
EMB4 – Embedded Systems 2 (5 ECTS)
SMMIB – Smart Manufacturing (5 ECTS)
Elective course equivalent to 5 ECTS
DMAIB, EMB4 and SMMIB are mandatory.

CONTEXT
DMAIB Digital Manufacturing contains:
Semester project SPRO4IB (10 ECTS). The main focus is to design and simulate a production system, based on different digital manufacturing tools. The project focuses in particular on the manufacturing part. OPM1 (5 ECTS) concerns manufacturing concepts, lean principles, process strategy, layout strategy and capacity planning visualised by computer simulations”
SMMIB (5 ECTS) focuses on the disruptive technologies related to Industry 4.0 and research how this will be applicable in future digitalized and highly automated companies. The course will theoretically cover the topics of additive manufacturing, internet of things, augmented/virtual reality, collaborative robots, big data etc. The students will get practical hands-on experience with enabling technologies that may disrupt manufacturing business in the near future. Practical competences will be obtained in the Smart Factory laboratory as well through industrial cases
EMB4 (EMB2 - 5 ECTS) Embedded Systems concerns:
The development of embedded systems and products.

Description of 5th Semester
SEMESTER THEME
“Experts in Teams”

VALUE ARGUMENTATION
At this point, the students have gained profound knowledge about the process of bringing a product idea close to commercialization. That is from idea to working product (prototype) as well as developing the corresponding business model, defining the manufacturing setup and (nearly) implementing it. This semester focuses on the complexity of working in a bigger organization and the challenges of working in multidisciplinary teams as the basis of solving complex engineering tasks. The students will meet a “real world challenge” and learn how to solve it and deliver the product in an environment with many stakeholders.

This includes that the students will:
• Participate in a collaborative innovation project, working in teams as so-called “experts in teams”
• Gain understanding of their own strength and the focus of their profile compared with other engineering profiles
• Gain understanding of the complexity of the innovation process in an interdisciplinary environment
• Gain project management skills
• Use theory of science to reflect on their specific contribution as part of the problem-solving process

COMPETENCE GOALS

Knowledge
• Knowledge and understanding of different approaches to problem solving – the user- oriented approach, the technical approach and the business-oriented approach
• Experience of project cooperation with many stakeholders, both internally and externally
• Insight in problem solving of complex interdisciplinary engineering tasks
• Insight in one’s own personal preferences and how this is used to give the best impact on teamwork
• Understanding project management concepts and tools
• Insight in practical project management methods
• Insight in project organization methods
• Understanding of the philosophical aspects of science
• Understanding of aspects of the history of technology and the interaction with the surrounding
• Understanding and practical experience in the Lean Philosophy, Manufacturing and Management Principles.
• Insight into quality management and be able to describe how to implement quality control in the basic organization
• Understanding of why Lean philosophy and quality management to a 6 sigma level go together
• Understand and describe the dominant concepts and models within the selected innovation management literature

Skills
• The ability to solve complex, interdisciplinary engineering tasks in teamwork, based one one’s own expertise
• The ability to dynamically organize project work, based on the individual participants competencies and personal preferences
• The ability to critically reflect on topics such as the delimitations of science, its development and divers views on scientific progress
• The ability to discuss topics like the relation between observations and theory and ethical aspects
• The ability to analyze and point out improvements for processes in a value stream and how to map these
• Be able to describe how to implement quality control in the basic organization

• Be able to design processes to obtain continuous and just in time flow of material and information
• Be able to discuss the development and maintenance of a complete quality control system according to ISO standards
• The ability to describe and use relevant concepts and models within innovation management
• The ability to describe the organizational challenges of Project Management
• The ability to apply relevant theoretical concepts to real life cases

Competencies
• The ability to work in projects with many stakeholders, both internally and externally
• The ability to participate in project management of technical development projects
• The ability to organize and plan teamwork in technical development projects
• The ability to do simple financial management tasks in development projects
• The ability to manage one's own participation and impact on all aspects of a development process
• The ability to respect and use other experts – giving the best quality and progress in development projects
• The ability to behave and act as a project manager
• The ability to behave and act as a team player
• The ability to take into account, the ethical aspects and impact on the surrounding society, when developing new technology and products
• The ability to assess the innovation capabilities of a real life company by performing an innovation audit
• The ability to develop strategies and guidelines for improving a companies' innovation performance

SEMESTER STRUCTURE
MC-EXS – Experts in Teams (10 ECTS)
PMTS – Project Management and Theory of Sciences (5 ECTS)
OPM2IB – Operations Management 2 (5 ECTS)
INMIB – Innovation Management (5 ECTS)
Elective course equivalent to 5 ECTS
MC-EXS, PMTS, OPM2IB and INMIB are mandatory

CONTEXT
MC-EXS (10 ECTS): Execution of a technical project characterized by a high degree of completion.
The supervisors will present a project from an external or internal stakeholder. The project must represent a problem requiring innovation and investigation of state-of-the-art research- and development experiences within the topic. The students will organize in a company-like structure – dealing with all, for the project, necessary roles (product development phases, project management, purchasing, budgeting etc.). As an expert-in-team, the individual student is given the possibility of focusing on specific disciplines from his/her study programme during the project work.
MC-PMTS (5 ECTS): Project management is a rapidly growing focus discipline within most businesses and organizations. Finding the optimal way of operating and managing projects is a continuous challenge. The overall aim of the project management part of the course is that students understand the challenges and managerial tasks related to project deliveries in organizations and are capable of setting up a plan for executing a project. In theory of Sciences, students will learn about the scientific method and the various forms of logical reasoning among other different philosophical interpretations and definitions of science.
OPM2IB (5 ECTS) contains:
Production planning and control, forecasting, stock controlling, LEAN manufacturing and quality management.
INMIB (5 ECTS) contains:
Theoretical and practical aspects of innovation management.

EXCHANGE POSSIBILITIES
The Faculty recommends and supports, that students go for a one semester exchange at another university. On the Innovation and Business bachelor programme the 5th semester can be used for this purpose. The Experts in Teams module (MC-EXS – 10 ECTS) and the elective course (5 ECTS) can be exchanged to elective courses at our partner universities – preferable including some project work. The remaining courses (PMTS, INMIB and OPMIB - 15 ECTS) can be exchanged with relevant courses with similar content. The exchange programme must be approved by the Academic Study Board.

Description of the 6th Semester
SEMESTER THEME
"Bachelor project"

VALUE ARGUMENTATION
The bachelor thesis must demonstrate students' ability independently to contribute to solving engineering problems or develop technical solutions that can be introduced to the market. The project must demonstrate technical understanding and application of learned theories and methods, development of concepts and prototypes and giving the student the possibility to:
• Be innovative and creative in product development from idea, concept, prototype, business plan, management, logistics\manufacturing until business establishment
• Apply knowledge and skills achieved during the study to solve complex engineering and business problems
• Acquire new knowledge within relevant engineering and business fields
• Co-operate with industrial companies throughout the project. In many projects the project will be carried out in close co-operation with industrial companies
• Apply theory of science in their project work
• Understand the importance of involving users and customers in a design process

Additionally, students learn about Research methods in Engineering and add to their understanding of business models in the course Sustainable Business Models . They can choose 1 elective course on this semester.

COMPETENCE GOALS
The students will, during the semester, learn, gain and demonstrate the following competencies:

Knowledge:
• Shall be acquainted with the theory, methods and practice within the subject area of the study programme
• Understanding of the key concepts of developing new sustainable business models incorporating the society and the environment in the modeling process

Skills:
• Shall be able to account for and is be able to reflect on theories, methods and practice
• Shall be able to apply scientific methods and tools within the subject are of the study programme
• The ability to describe, analyze and evaluate key theories used in the literature on sustainable business models
Competencies:
• Shall be able to assess theoretical and practical problems and apply relevant analysis and problem-solving models
• Shall be able to communicate relevant professional and scientific problems and solutions either to professionals and non-professionals or to collaborators and users
• Shall be able to manage complex and development-orientated situations related to study or work
• Shall be able to independently be a part of discipline-specific and cross-disciplinary cooperation and to assume a professional approach
• Shall be able to identify his/her educational needs and to structure his/her learning in different learning environments
• Shall be able to communicate in writing in a clear and understandable manner

SEMESTER STRUCTURE
BPROIB – Bachelor Thesis (15 ECTS)
RMEIB - Research methods in Engineering (5 ECTS)
SBMIB – Sustainable Business models (5 ECTS)
Elective course equivalent to 5 ECTS
BPRO6IB, RME6IB and SBMIB are mandatory.

CONTEXT
BPROIB: The aim of the project is to demonstrate the student's qualified skills in expressing, analysing and processing problems within a limited, course-relevant and engineering-specific subject.
RMEIB - Research methods in Engineering: The students get the knowledge and skills to formulate relevant research problems and to create appropriate research designs. This results in acquiring competences in data collection, data analysis and presenting conclusions in an academic way. This course supports the students in writing their bachelor thesis and prepares them for reading and understanding more advanced literature.
SBMIB: The course aims to introduce the principles, methodologies, and tools related to business model innovation on the basis of, for example, the circular economy and the Cradle- to- Cradle design philosophy in a business context. By challenging to explore, rethink and challenge current business model practices students learn how to grasp opportunities and challenges in order to creatively seek ways of developing new business models, which are both economically, socially and environmentally sustainable in the long-term.

▾ § 3.1.1 - Connection between entry requirements and the first year
The academic fields of the 1st semester build upon the entry requirements, especially in relation to mathematics (A-level) and physics (B-level). For instance, this is evident in MATH1 where the student is introduced to further differentiation and integration techniques as well as studying differential equations more advanced as encountered in high school mathematics. In MECH1 the concept of force and Newton's Laws included in the entry requirements are developed in order to analyze the static equilibrium conditions for mechanical structures.

▾ § 4 - Course Descriptions

▾ § 4 - Compulsory courses

Profile divided course descriptions

Bachelor i ingeniørvidenskab (Teknik, Innovation og Erhverv) 2020

Course descriptions in the curriculum

Statics, Materials and Mathematics

Course ID
T340025401

Course Title
Statics, Materials and Mathematics

ECTS value
10

Internal Course Code
MC-SMM

Responsible study board
Academic Study Board of the Faculty of Engineering

Discover Engineering & Innovation

Course ID
T300016401

Course Title
Discover Engineering & Innovation

ECTS value
20

Internal Course Code
DEIIB

Responsible study board
Academic Study Board of the Faculty of Engineering

Prototyping and Business Development

Course ID
T300017401

Course Title
Prototyping and Business Development

ECTS value
20

Internal Course Code
PRBDIB

Responsible study board
Academic Study Board of the Faculty of Engineering

Dynamics and Mathematics

Course ID
T340028401

Course Title
Dynamics and Mathematics

ECTS value
10

Internal Course Code
MC-DYM

Responsible study board
Academic Study Board of the Faculty of Engineering

Product Development

Course ID
T300019401

Course Title
Product Development

ECTS value
15

Internal Course Code
PDEIB

Responsible study board
Academic Study Board of the Faculty of Engineering

Technology Management

Course ID
T300018401

Course Title
Technology Management

ECTS value
5

Internal Course Code
TEMAIB

Responsible study board
Academic Study Board of the Faculty of Engineering

Sensors and Electronics

Course ID
T300004401

Course Title
Sensors and Electronics

ECTS value
10

Internal Course Code
SENS3

Responsible study board
Academic Study Board of the Faculty of Engineering

Embedded Systems 4

Course ID
T300006401

Course Title
Embedded Systems 4

ECTS value
5

Internal Course Code
EMB4

Responsible study board
Academic Study Board of the Faculty of Engineering

Smart Manufacturing

Course ID
T300007401

Course Title
Smart Manufacturing

ECTS value
5

Internal Course Code
SMM4IB

Responsible study board
Academic Study Board of the Faculty of Engineering

Expert in Teams

Course ID
T340059401

Course Title
Expert in Teams

ECTS value
10

Internal Course Code
MC-EXS

Responsible study board
Academic Study Board of the Faculty of Engineering

Operations Management

Course ID
T300008401

Course Title
Operations Management

ECTS value
5

Internal Course Code
OPM5IB

Responsible study board
Academic Study Board of the Faculty of Engineering

Innovation Management

Course ID

T300009401

Course Title
Innovation Management

ECTS value
5

Internal Course Code
INM5IB

Responsible study board
Academic Study Board of the Faculty of Engineering

Project Management and Theory of Science for Engineers

Course ID
T340058401

Course Title
Project Management and Theory of Science for Engineers

ECTS value
5

Internal Course Code
MC-PMTS

Responsible study board
Academic Study Board of the Faculty of Engineering

Research Methods in Engineering

Course ID
T300014401

Course Title
Research Methods in Engineering

ECTS value
5

Internal Course Code
RME6IB

Responsible study board
Academic Study Board of the Faculty of Engineering

Bachelor Project

Course ID
T300011401

Course Title
Bachelor Project

ECTS value
15

Internal Course Code
BPRO6IB

Responsible study board
Academic Study Board of the Faculty of Engineering

§ 5 - Examination provisions

§ 5.1 - Programme passing requirements

5.1.1 An examination is graded in accordance with the 7-point grading scale. It can also be graded as 'passed/failed' (bestået/ikke-bestået) or 'approved/non-approved' (godkendt/ikke-godkendt). The Bachelor Project is always graded in accordance with the 7-point grading scale.

5.1.2 An examination or a course is considered to be passed when the student has attained the assessment 'passed', 'approved' or the grade of 2 or higher.

5.1.3 The 'passed/failed' and 'approved/non-approved' forms of assessment can account for no more than one-third of the programme's total number of ECTS. This does not apply to credit transfers from previous examinations.

5.1.4 When the basis for assessing a study activity is 'tuition attendance' – this assessment is made by the teacher based on criteria of which students are informed at the beginning of the course. The condition for awarding the assessment 'approved' is that the student at an examination must have achieved the learning objectives established for the course to such an extent that it would result in the assessment 'approved' or a grade of at least 02 would be given.

5.1. 5 The basis for assessment in connection with tuition attendance may be one or more of the following:

- attendance at lectures and exercises
- completed laboratory work, portfolios and reports and completed assignments or other practical or theoretical work
- participation in guiding internal examinations
- participation in seminars.

5.1.6 The student must be notified whether or not his/her participation in the course activities has been approved before the end of the semester.

5.1.7 The study programme has been successfully completed when the student has attained:

- the grade of 2 or higher in all examinations graded in accordance with the 7-point grading scale
- the assessment 'passed' in all examinations assessed as either 'passed' or 'failed'
- the assessment 'approved' in all examinations assessed as either 'approved' or 'non-approved'.

§ 5.2 - Special exams

Examinations Abroad

5.2.0.1 The Academic Study Board can grant dispensation to take examinations at a Danish representation or other site abroad, when there are exceptional circumstances that prevent the student from taking the examination(s) in Denmark. The examination can be set up as a video conference or by using other technical aids.

5.2.0.2 The student is responsible for all practical arrangements related to the examination.

5.2.0.3 All costs linked to holding the examination, cancellation of the examination due to illness (if applicable) and problems with connecting to the system, etc., for which SDU cannot be held liable, shall be paid by the student.

§ 5.2.1 - Start of study exam

5.2.1.1 Students enrolled on a bachelor's programme must take and pass a study start examination in order to continue on their programme. The purpose of the study start examination is to verify that students have commenced their studies.

5.2.1.2 Students have two examinations attempts to pass the study start examination.

5.2.1.3 The content and evaluation form of the study start test are described in the course description.

5.2.1.4 If warranted by special circumstances, the Academic Study Board may grant dispensation from the rules on the study start examination.

§ 5.2.2 - First year exam

5.2.2.1 Before the end of the first year of study, the student must take the test(s) which according to the programme-specific part of the Curriculum are constituent components of the first-year examination. The first-year examination must be passed in its entirety before the end of the first year of study after the commencement of studies, in order for the student to qualify for continuing his or her studies. This applies irrespective of whether or not the student has used his/her third examination attempt.

5.2.2.2 The first-year examination of the Bachelor of Science in Engineering programmes at the University of Southern Denmark consists of the courses of the first semester of the programme in question in their entirety and the project course in the second semester, with the exception of study programme of BSc (Eng) in Physics and Technology, where the first year examination consists of the courses on the 1st semester only. The detailed contents of the first-year examination are listed in the semester descriptions of the Curriculum and the course descriptions.

5.2.2.3 There is offered a third examination in the 1st semester courses in the spring semester, before the ordinary examination in the project module in the 2nd semester. Students who have not passed the 1st semester courses in connection with the ordinary examination and/or the re-examination, can register for this examination with the aim of passing the first-year examination.

5.2.2.4 If warranted by extraordinary circumstances, or the student is elite athlete, entrepreneur or a chairman for an organisation under the Danish Youth Council (DUF), the Academic Study Board may grant dispensation from the rules on the first-year examination. It is a prerequisite for the participation in the 3rd semester courses on the bachelor programmes, that the student has passed the first year examination in its entirety.

§ 5.3 - Spelling and writing skills

5.3.1 The assessment of the Bachelor Project and other major written assignments must also, in addition to the technical content, address the student's spelling and language proficiency, regardless of the language in which the project is written.

5.3.2 The projects must be written in a concise and easily understandable language. The wording of the written presentations or the Bachelor Project may have a positive or negative impact on the overall grade. Additional information on the language requirements is provided in the course descriptions.

5.3.3 The Academic Study Board may grant dispensations from the above spelling and wording requirements for students who can document that they suffer from a relevant, specific impairment (such as dyslexia).

§ 5.4 - Internal or external exams

5.4.1 Examinations are either external or internal. External examinations are assessed by the teacher(s) and one or more external examiners appointed by the Danish Agency for Higher Education. Internal examinations are assessed by one or more teachers appointed by the university from among its teachers.

5.4.2 At least one-third of the programme's total number of ECTS points must be documented by external assessment. This includes the most important components of the programme, including the Bachelor Project, but does not apply to credits transferred from other examinations.

§ 5.5 - Exam language

Study programmes offered in Danish
5.5.1 1st-2nd semesters: The tuition and examination language is, as a basic rule, Danish. Examinations may be taken in Swedish or Norwegian instead of Danish.

5.5.2 3rd-4th semesters: The tuition and examination language is, as a basic rule, Danish. Examinations may be taken in Swedish or Norwegian instead of Danish. If individual courses are offered in Danish but taught in English by a lecturer, who speaks Danish, the examination language is the student’s preferred language (Danish or English). If individual courses are offered in Danish but taught in English by a lecturer, who does not speak Danish, the examination language is English.

5.5.3 5th-6th semesters: The courses are, as a basic rule, offered, taught and examined in English. The Academic Study Board may grant dispensation from this rule.

Study programmes offered or taught in English
5.5.4 The examination language is English. The Academic Study Board may grant dispensation from this rule.

The Academic Study Board may, if circumstances allow it, allow students who should so wish to take the examination in a foreign language. However, this does not apply to examinations that require presentations in Danish. The Academic Study Board may grant dispensation from this rule.

§ 5.6 - Forms of assessment

Purpose
5.6.1 The purpose of the examination is to assess whether and to which extent the student's qualifications match the learning objectives laid down in the Danish Ministerial Order concerning Undergraduate and Postgraduate studies at Danish Universities (Uddannelsesbekendtgørelsen), the Curriculum and the respective semester plans. The final examination provides the basis for issuing a diploma.

Examination Forms
5.6.2 The programme includes a variety of examination forms to reflect the content and working methods of the tuition provided. The examination forms must accommodate the purpose of the individual subject/subject element, and may include:

- oral, written and practical examinations, project-oriented courses and combinations of the different forms of examination.

5.6.3 Any requirements on mandatory attendance or completion of written assignments, etc., during the study period which must be met in order for the student to be allowed to take an examination at the end of the course or course element are specified in the relevant module description.

5.6.4 All written campus-based examinations must be completed using a computer in accordance with the University of Southern Denmark’s rule set for written examinations.

Assessment of Group Assignments
5.6.5 Projects are normally completed by groups of students. As a rule, these groups consist of six students. The Head of Programme may allow a group to consist of fewer or more students, based on an individual professional assessment. However, these provisions do not apply to the Bachelor Project.

Sound and/or Image Recordings
5.6.6 The use of sound and image recordings during examination is not allowed, unless such recordings are part of the examination procedure. If so, such recordings will be made by the university.

Examination Aids
5.6.7 The use of examination aids is specified in the individual course descriptions and semester plans.

§ 5.7 - Irregularities at exams

Disciplinary Action
5.7.1 Disciplinary action will be taken against a student who:

- unlawfully seeks or offers help with the completion of an examination paper, or
- brings non-allowed examination aids to an examination, or
- passes the work of another off as his/her own, or
- cites his/her own previously evaluated work without adding proper references, or
- is otherwise found guilty of cheating at the examination

cf. The Regulations of the University of Southern Denmark re. Disciplinary Measures.

5.7.2 Disciplinary action may also be taken against a student who acts in an interruptive manner during an examination.

Errors and Defects in an Examination
5.7.3 If a student discovers errors or defects in an examination, he or she must contact the evaluators (for oral examinations) or the invigilators (for written examinations).

5.7.4 In cases of errors or defects or a particularly serious character, or where this must be considered the most appropriate way to remedy the error or defect, the university may cancel the examination and make arrangements to conduct an extraordinary examination. Re-examination due to cancellation of the original examination may result in a lower mark.

5.7.5 The university may offer an extraordinary examination in connection with other errors or defects. The offer must apply to all students whose examinations are affected by the error or defect in question. A student who has taken the extraordinary examination may choose to retain the original assessment given.

§ 5.8 - Special examination conditions

5.8.1 Students with physical or mental impairments, or similar difficulties may apply to the Academic Study Board to be granted special examination conditions. The Academic Study Board will accommodate the request if this is found necessary in order to place such students on an equal footing with others during the examination. It is a condition that the alteration does not imply a change of the level of examination.

5.8.2 The deadline for applying for special examination conditions is 1 October for the winter examination term and 1 March for the summer examination term. In case of chronic impairments, the Academic Study Board may approve special examination conditions for the rest of the bachelor's programme.

5.8.3 The diploma will not include any information on special examination conditions.

§ 5.9 - Ordinary exams

5.9.1 Ordinary examinations will be held immediately at the end of the course leading up to the examination.

5.9.2 The student must be prepared to sit examinations throughout the examination period, but not in July. This also applies in situations when a planned examination is moved due to *force majeure*.

§ 5.10 - Reexams

5.10.1 Students who did not pass the ordinary examination and students who have registered for classes the semester of the ordinary examination but have failed to attend the ordinary examination can register for re-examination.

5.10.2 Re-examinations will be held during the same examination period as the ordinary examination. The examination period for the autumn semester is 2 January - 28/29 February and for the spring semester 1 June - 31 August. In some cases, examinations can also be held in December and May. Examinations are not held in July, unless warranted by special circumstances.

5.10.3 The student must register for re-examination via Student Self-service, https://sso.sdu.dk in the following period:

- 01-20 January for re-examination in the winter examination period (=February)
- 01-20 June for re-examination in the summer examination period (=August)

5.10.4 Students cannot withdraw from registration for re-examination, and it will count as a failed examination attempt if the student does not take the examination unless the Academic Study Board has granted dispensation from this rule.

5.10.5 Re-examination may take a different form of examination or assessment than the ordinary examination. Students will be notified of any change in the form of examination or assessment before the examination. The form of examination for the Bachelor Project, however, cannot be changed.

Consequences for not having passed an exam by 2nd attempt
5.10.6 If the student does not attend or pass the ordinary examination and/or the relevant re-exam, the student can register for the examination the next time the course is offered next time. The student must comply with the registration period.

5.10.7 If the student failed an examination on the second attempt on a course offered by the Faculty of Engineering, the student must participate in the course and re-submit all assignments prior to the next ordinary examination (third examination attempt), unless the course is no longer offered. The Academic Study Board can grant dispensation from this rule.

§ 5.11 - Exam attemts

5.11.1 A passed examination cannot be retaken.

5.11.2 A student has three attempts to pass an examination. If warranted by extraordinary circumstances, the Academic Study Board may grant additional examination attempts. The question of academic ability cannot be considered in assessing whether or not such extraordinary circumstances exist. The first-year examination and the study start examinations constitute an exception to this rule.

5.11.3 A student whose tuition attendance is to be assessed for the second time may demand an examination instead. Tuition attendance associated with practical exercises, however, cannot be replaced by an examination. This rule does not apply to the study start examination.

§ 5.12 - Requirements for exams

Failure to Meet Examination Requirements
5.12.1 If the student fails to fulfil the examination requirements this will count as one examination attempt. In extraordinary circumstances, the Academic Study Board can grant dispensation from this rule.

Absence from Examination Activities
5.12.2 If the student is absent from an examination, this leads to the student losing an examination attempt. If the evaluation a course is based on an overall evaluation of two or more examination activities, absence from one or more activities leads to the student being registered as absent from the entire examination. The Academic Study Board can grant dispensation from this rule, if there are extraordinary circumstances.

Participation in Group Assignments
5.12.3 The student is required to participate actively in group assignments. For this reason, the work will be supervised by the academic supervisor. If a student fails to meet the requirement on active participation, the relevant programme co-ordinator, following the academic supervisor's or the Head of Programme's recommendation, may decide that the student be excluded from the group. The applicable criteria for assessing whether the group assignment work has been performed satisfactorily will be laid down for the assignment at the start of the supervision

§ 5.13 - Group exams

5.13.1 Group examinations are arranged as individual or group examinations.

5.13.2 The basis for assessment is always individual, and individual grades are given.

5.13.3 The course description specifies the maximum number of students who can participate in a group examination. It will not be possible to choose an individual examination instead of a group examination, the Bachelor Project being an exception from this rule.

§ 6 - Credit transfer

§ 6.1 - Transfer of credit

6.1.1 The student must apply for credit transfer for course elements passed from all previous study programmes at bachelor level immediately after enrolling in the programme in question at the Faculty of Engineering.

§ 6.2 - Transfer of credit

6.2.1 Students who wish to take course elements from a different course or at another institute of higher education in Denmark or abroad as part of their study programme can apply to the Academic Study Board for pre-approved credit transfers for planned course elements.

6.2.2 Students who wish to take on student exchange abroad for at least for a semester, must have passed courses corresponding to at least 90 ECTS points on the respective bachelor's programme. Furthermore, the student exchange abroad may not lead to an extension of the student's study period.

6.2.3 The Academic Study Board must have pre-approved credits for courses offered in the autumn semester and which form part of the student’s pool of electives no later than at the Study Board’s meeting in August. Likewise, the Academic Study Board must have pre-approved credits for courses offered in the spring semester and which form part of the student’s pool of electives no later than at the Study Board’s meeting in January.

6.2.4 The Academic Study Board must have pre-approved credits for courses offered in the autumn semester and which are to replace constituent courses in the curriculum no later than at the Study Board’s meeting in April. Likewise, The Academic Study Board must have preapproved credit transfer for courses offered in the spring semester and which are to replace constituent subjects in the curriculum no later than at the Study Board’s meeting in November.

6.2.5 A decision of pre-approval of credit transfer puts the student under the obligation of sending documentation for passed study activities to the Academic Study Board.

6.2.6 Students must re-apply for pre-approved credit transfers if they cannot attend one or more of the course elements for which they have obtained pre-approved credit transfers.

§ 6.3 - Credit

6.3.1 Based on an assessment of the academic qualifications of a student, the Academic Study Board may allow credits to be transferred from a previous higher education programme in Denmark or abroad.

6.3.2 The possibility of credit transfers will always depend on the Academic Study Board's assessment of the equivalence between the relevant programme components.

6.3.2.1 Course elements which have been passed will only entitle the student to credit transfers in cases where such elements are at the same level as the study programme the student is enrolled in (Bachelor or Master’s level).

6.3.3 Course elements whose contents coincide with the contents of constituent course elements of the study programme in question or with any already passed course elements in the present study programme cannot be approved as elective courses or entitle to credit transfers as elective courses in the study programme. Elective courses include all course elements approved by the Academic Study Board and that are not compulsory in the study programme in which the student is enrolled.

6.3.4 Credit transfers are only given upon production of an original, official transcript of records showing the study activities passed by the student.

6.3.5 Transfer of study credits with grades is possible only when the previously passed study activity was graded in accordance with the 7-point grading scale, and when there is equivalence between the previously passed study activity passed and the study activity being substituted. Such equivalence must exist both in terms of the technical contents and in terms of the scope of the activity, as measured in ECTS points.

§ 7 - Provisions on the organisation of the programme

§ 7.1 - Enrollment and Unenrollment from teaching and exams

Course and Exam Registration

7.1.1 Registration for tuition and examinations shall be conducted in compliance with SDU’s rules on registering for courses and examinations.

7.1.2 The prerequisite for participating in tuition and examinations during each semester is that the student registers for the semester’s activities within the deadlines.

7.1.2.1 Admission to the study programme also implies admission to the first and second semester tuition and examination. Admission to tuition and examinations in the other semesters takes place electronically on Student Services Online at https://sso.sdu.dk.

7.1.2.2 The application periods are May for tuition during the autumn semester and November/December for tuition during the spring semester. The registration period is published on the website and is sent by e-mail to students’ SDU e-mail addresses. It is the student's responsibility to keep abreast of the time limits for registration.

7.1.3 Registration for a subject or optional subject involves automatic registration for tuition and the associated ordinary examination. Registration for both compulsory and optional subjects is binding. The Academic Study Board grant dispensation from this rule, provided that special circumstances apply. However, electives can be changed. See 7.1.4.

7.1.3.1 If the student registers for subjects additional to the 30 new ECTS points per semester, this registration will also be binding and cannot be cancelled.

7.1.4 Students may change an optional subject if they have not attempted an examination in the subject for a different optional subject within the first three weeks of the start of the semester.

7.1.5 The student must register for tuition and examination when the subject is offered for the final time.

7.1.6. It is the responsibility of students to check their registrations at the start of the semester.

7.1.7 Students cannot register for courses beyond the level required to complete the study programme, unless the student in question is enrolled on one of SDU's talent programmes.

Course og Exam Withdrawal
7.1.8 Withdrawal is not permitted and absence from an examination will be considered a failed examination attempt, unless the Academic Study Board grants dispensation for withdrawal from one or more courses. The student must have applied for a dispensation for withdrawal before the exam is question is held.

§ 7.2 - Access to Masters level courses

7.2.1 Students, who are enrolled on a BSc (Eng) study programme at SDU, can apply for a permission to follow courses on a MSc (Eng) programme, if the Academic Study Board judges that the student has academic prerequisities to pass the bachelor's programme and simultaneously follow courses on a master's programme.

7.2.1.1 The student must generally have passed all courses on 1-4 semesters of the bachelor's programme at SDU. Furthermore, the student can, at a maximum, follow courses equivalent of 30 ECTS points pr. semester, including failed courses at bachelor level.

§ 7.3 - Deadline for programme completion

Maximum Study Period
7.3.1 The bachelor's programme must be completed no later than four years after the commencement of studies. See SDU's rules on completion times for Bachelor, Professional Bachelor and Master's (Candidatus) programmes. Granted leave of absence is not included in this time period.

7.3.2 If warranted by special circumstances or the student is elite athlete, entrepreneur or a chairman for an organisation under the Danish Youth Council (DUF), the Academic Study Board may grant dispensation from the rules on the maximum study period.

§ 7.4 - Study activity

Minimum Pass Grade Requirement
7.4.1 A student must pass at least one ECTS qualifying examination during a coherent period of at least one year. Should this requirement not be fulfilled, the student's enrolment will be cancelled.

7.4.1.1 If warranted by special circumstances, the Academic Study Board can grant dispensation from the minimum pass grade requirement.

§ 7.5 - Bachelors project

7.5.1 The Bachelor Project is completed during the sixth semester of the programme. This serves to demonstrate the student's ability qualitatively to formulate, analyse and address problems within a specific academic discipline which reflects the main emphasis of the programme.

7.5.2 The Bachelor Project may be completed individually or jointly by two students. The relevant Head of Programme may permit joint completion of a Bachelor Project by up to three students.

7.5.3 The Bachelor Project must be completed in the course of a semester. The starting date and delivery deadline for a project to be completed over the autumn semester are the first workday in September, and the month of January, respectively, and for a project to be completed over the spring semester, the starting date and delivery deadline are the first workday in February, and the month of June, respectively. In extraordinary circumstances, the Academic Study Board may grant dispensation from the established deadlines.

7.5.4 The Contract for the Bachelor Project is approved by the academic supervisor and relevant Head of Programme . A registered Contract for the Bachelor Project may be amended only if dispensation to do so has been granted by the Academic Study Board. Title changes, which do not lead to a delay in the submission date, are approved by the academic supervisor of the project.

7.5.5 The deadline for submission specified in the Contract for the Bachelor Project is binding, and failure to observe the deadline will cause the project to be considered failed, and the student must register for tuition in the following semester, sign a new Bachelor Project contract and prepare a new bachelor project. A new project is defined as a new project description with a new title.

7.5.6 The Bachelor Project must include an abstract written in a foreign language. The course description specifies which language the abstract must be written in. If the Bachelor Project is written in a foreign language other than Norwegian or Swedish, the abstract may be written in Danish. The abstract forms part of the assessment of the Bachelor Project.

§ 7.6 - Change of profile

7.6.1 If there are profiles/specialisations on the bachelor's programme, the Academic Study Board may grant dispensation to change of profile/specialisation. A change of profile/specialisation may not lead to a prolongation of the total study time of the student.

§ 7.7 - Individual activities

Individual Study Activities
7.7.1 Students may in agreement with a supervisor apply to the Academic Study Board for an individual study activity.

7.7.2 Individual study activities shall include a description of the learning outcomes in terms of knowledge, skills, competencies and assessment method.

7.7.3 An individual study activity may not be used to reduce the scope of the study programme, and it may not overlap with the contents of the Bachelor Project.

7.7.4 As a general rule, the extent of an individual study activity may not exceed 5 ECTS points. The Academic Study Board can, under special circumstances, make an exception to this rule.

7.7.5 Individual study activities completed in the autumn semester and which do not form part of the curriculum and which are to be included in the student's pool of optional subjects must have been approved by the Academic Study Board no later than at the Study Board's meeting in August. Likewise, individual study activities completed in the spring semester and which do not form part of the curriculum and which are to be included in the student's pool of optional subjects must have been approved by the Academic Study Board no later than at the Study Board's meeting in January.

7.7.6 Individual study activities completed in the autumn semester and which do not form part of the curriculum and which are to be included in the student's constituent subjects must have been approved by the Academic Study Board no later than at the Study Board's meeting in April. Likewise, individual study activities completed in the spring semester and which do not form part of the curriculum and which are to be included in the student's constituent subjects must have been approved by the Academic Study Board no later than at the Study Board's meeting in November. As a general rule, individual study activities can only substitute obligatory coursees in situations, where the obligatory course no longer is offered, the student has not used examination attempts in the course in question, and it is not possible to take an equivalent course (pre-approval of credit transfer).

§ 7.8 - Limitation on the number of entries

7.8.1 The university may introduce restrictions on the choice of modules and on the choice of subjects for the project assignments. The university applies academic criteria as selection criteria if there is a limited number of places on a subject. If setting academic criteria is not possible, the university may use a draw as a selection criterion.

§ 8 - Exemptions and complaints procedures

§ 8.1 - Dispensation from University regulations

8.1.1 When warranted by extraordinary circumstances, the Academic Study Board may grant dispensations from those rules of the Curriculum which have been laid down exclusively by the institution. In certain situations, where the student is elite athlete, entrepreneur or a chairman for an organisation under the Danish Youth Council (DUF), the Academic Study Board may grant a dispensation from the curriculum or the rules of SDU. The Academic Study Board may in all cases of dispensation, apart from when deciding upon extra examination attempts, consider the academic ability of the student in question.

8.1.2 Any application for dispensation from the rules of the Curriculum must be made in writing, must be reasoned, and must be accompanied by relevant documentation. Costs related to acquiring such documentation shall be borne by the student. Find information on application deadlines here.

§ 8.2 - Complaints over exams

8.2.1 The student is entitled to complain about an examination or other evaluation that is a constituent part of the examination. Complaints may

- be procedural (i.e. concerning whether the matter has been handled in accordance with applicable law and general principles of administrative law), or
- relate to the basis of examination,
- relate to the examination procedure and/or
- relate to the assessment of the examination

and must be submitted by the student to the university no later than 14 days after publication of the examination result. The complaint must be in writing. The complaint must be addressed to the secretariat of the Academic Study Board at the Faculty of Engineering and sent to studienaevn@tek.sdu.dk.

8.2.2 The university will decide on the complaint based on the assessors' professional opinion and the complainant's comments on the result. The decision may offer a reassessment or a re-examination, or may find against the complainant. A re-assessment or re-examination could result in a lower grade. Complaints cannot be made about examination basis, examination procedures or assessment related to the study start examination

§ 8.3 - Complaints over University decisions

Complaints regarding Procedural Matters
8.3.1. The student is entitled to file a procedural complaint (i.e. concerning whether the matter has been handled in accordance with applicable law and general principles of administrative law) against the university's decisions, including decisions made by the Academic Study Board. Procedural complaints may be submitted to the Danish Agency for Science and Higher Education.

8.3.2 The complaint must be submitted to the University no later than 14 days after the student has been notified of the contested decision. The complaint must be in writing. The complaint must be addressed to the secretariat of the Academic Study Board at the Faculty of Engineering and sent to studienaevn@tek.sdu.dk.

Complaints about Credit Transfers and Pre-approval of Credit Transfers
8.3.3 Complaints about the refusal or partial refusal of

- pre-approval of credit transfers for Danish or foreign course elements, and
- credit transfers for Danish or foreign course elements that have been passed

can be submitted to a credit transfer complaints board in accordance with the rules on complaints boards for decisions regarding credit transfers for university programmes (the ministerial order on credit transfer complaints boards). The complaint must be submitted to the University no later than 14 days after the student has been notified of the contested decision. The complaint must be in writing. The complaint must be addressed to the secretariat of the Academic Study Board at the Faculty of Engineering and sent to studienaevn@tek.sdu.dk.

§ 9 - The affiliation of the programme

§ 9 - Transitions

9.0.1. Students re-admitted and/or re-enrolled on a bachelor's programme in September 2021 cannot have credits transferred from their previous study start examination. I.e., they must pass the study start examination in September 2021 in order to continue with their studies.

9.0.2 The rules concerning maximum period of study, which were valid at the time of admission and enrolment, apply on students admitted and enrolled on a bachelor's programme before 1 September 2015. Ie. these students must have completed the study programme within 55 months the commencement of studies.

9.0.3 Transitional Curriculum Arrangements (programme specific)

Upon effective date of the curriculum, earlier curricula will be phased out and the affected courses will be taught and examined for the last time concurrently with the phasing out of the curriculum. For details please refer to the individual course descriptions.

Students enrolled on earlier curricula will continue on their current curriculum and will not be affected by these changes unless they are behind in their studies and have yet to pass courses that are no longer offered or for some other reason apply for change of curriculum.

Students enrolled on earlier curricula who do not follow the prescribed course of study will not be offered special teaching. Thus, students who have yet to pass courses that are no longer offered must replace those courses with courses from the new curriculum. Alternatively, students can apply to the study board for change of curriculum.

Leave of absence and re-enrolment

In cases of re-enrolment the faculty will decide whether the student is enrolled on this curriculum or will continue on his/her original curriculum. At the end of a leave of absence the student will be enrolled on his/her original curriculum unless the student applies for a change of curriculum.

Credit transfer

When students change curriculum, courses passed will be credit transferred to compulsory courses in the new curriculum according to the below. There will be no transfer of or changes in the number of ECTS credits. This also applies when the credits on an earlier curriculum differs from the credits on the courses to which it is credit transferred. Only courses completed and passed in their entirety can be transferred.

Students enrolled in curricula before 2020, where the course Experts in Teams was 15 ECTS and have not yet passed this course must complete the following courses: T340059401 (MC-EXS 10 ECTS) + T340035401(MC-PMTS 5 ECTS).
Students who did pass the Experts in Teams course of 15 ECTS, will obtain credit transfer for T340059401 (MC-EXS 10 ECTS) + T340035401(MC-PMTS 5 ECTS).

§ 9.1 - Legal basis

This Curriculum was prepared on the basis of the authority granted by the provisions of:

- Danish Constitutional Act no. 778 of 7 August 2019 concerning the Danish Act on Universities (Universitetsloven)
- Danish Ministerial Order no. 104 of 24 January 2021 on Admission and Enrolment on Bachelor and Master’s Programmes (candidatus) at Universities (Adgangsbekendtgørelsen)
- Danish Ministerial Order no. 20 of 9 January 2020 on bachelor and master’s programmes (candidatus) at universities (Uddannelsesbekendtgørelsen)
- Danish Ministerial Order no. 22 of 9 January 2020 on University Examinations and Grading (Eksamensbekendtgørelsen)
- Danish Ministerial Order no. 114 of 3 February 2015 on the Grading Scale and Other Forms of Assessment under the Danish Ministry of Higher Education and Science (Karakterbekendtgørelsen)
- Danish Ministerial Order no 1517 of 16 December 2013 on Credit Transfer Appeals Boards (Meritankenævnsbekendtgørelsen)
- Danish Ministerial Order no 597 of 8 March 2015 om Talent Initiatives on Higher Education within the area of Ministry of Higher Education and Science (Talentbekendtgørelsen)

§ 9.2 - Academic Study Board

Academic Study Board of the Faculty of Engineering

§ 9.4 - Effective date

01-09-2021

§ 9.5 - Date of Study Board Approval

13-09-2021

§ 9.6 - Date of Deans Approval

14-09-2021