

**The Curricula for
Bachelor of Engineering in Global Management and
Manufacturing**

The Curricula for Bachelor of Engineering in Global Management and Manufacturing

Academic Study Board of the Faculty of Engineering

Programme titles:

- Diplomingeniør i Global Management and Manufacturing
- Bachelor of Engineering in Global Management and Manufacturing

ECTS value: 210

Cities: Odense

Semesters: Autumn

Effective date:

Applicable for students enrolled: 01-09-2018

Version: Archive

▼ § 1 - Description of the Programme

▼ § 1.1 - Applicable for students enrolled

01-09-2018

▼ § 1.2 - Aim of Programme, including any professional profile and specialisations

The Bachelor of Engineering programme aims to qualify the student to perform vocational activities in both national and international settings, where he or she is required to:

- Translate technical research results and scientific and technical knowledge into practical application in development assignments and in the resolution of technical problems.
- Critically acquire new knowledge within relevant areas of engineering.
- Independently accomplish general engineering assignments.
- Plan, realise and manage technical and technological plants and systems, and in doing so be able to consider societal, financial, environmental and workplace safety and health implications in the resolution of technical problems.
- Take part in co-operative and managerial functions and contexts at a qualified level together with people with different educational, linguistic and cultural backgrounds.
- Furthermore, the programme aims to qualify the students to participate in further education.

The Bachelor of Engineering programme is planned to comprise 3½ years of full-time equivalent work. A year of full-time equivalent work denotes a full-time student's work in the course of a year, corresponding to 60 ECTS points. Thus, the duration of the complete programme corresponds to 210 ECTS points. In addition, the student is required to participate in practical workshop training.

The Bachelor of Engineering programme includes

- mandatory technical courses
- elective courses
- practical workshop training
- engineering internship
- bachelor project (in the following referred to as final project).

▼ § 1.3 - Didactic and pedagogical basis

The Engineering Education Model of the University of Southern Denmark

The Bachelor of Engineering programme is a profession and development based programme of higher education which qualifies the student to carry out professional functions and independent work within the area of engineering. Another purpose of the programme is to qualify the student for further education.

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 levels 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 incorporate a high level of business relevance, ensured mainly through students' participation in the integrated engineering practice and via project 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 teams'

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 of Engineering, Global Management and Manufacturing

Name

Bachelor of Engineering, Global Management and Manufacturing

Competence profile

Knowledge:

- Global view of business development in markets of supply and demand.
- The process of acquiring companies.
- Knowledge about Product to the Market considering; positioning, segmentation, marketing parameters and customer awareness in different cultures
- In-depth knowledge about the strategic Global Supply Chain Networks, their elements, how they are interconnected and the context in which they operate.

- Detailed knowledge about establishing and managing manufacturing processes and assets.
- Knowledge about international company aspects within CSR, Regulatory compliance, leadership and multicultural cooperation, as well as change management.
- Thorough knowledge about regulatory international trading aspects in legislation, conventions, bilateral agreements, regions conditions, governmental influences etc.
- In-depth knowledge of Supply Chain and Operations Management, warehouse management, procurement, sourcing, distribution and ERP-systems in a global, inter-group and local context.
- Profound knowledge about the company's internal and external accounting, financing and control systems.
- Broad knowledge about economical evaluation of countries' macro-economic situation in investment and establishing aspects.
- Broad knowledge of different labour market systems.
- Project management in cross cultural environments.
- Knowledge about the operational use of the company's ERP system, as well as how it can support the decision making process.
- Knowledge about quality management and quality improvement methods.

Skills:

- Ability to assess, calculate and propose operational investment possibilities in different markets and countries.
- Ability to manage and carry out supply chain improvement projects.
- Ability to communicate in business English and make use of acquired knowledge within international topics.
- Ability to plan "Product to Market" activities. Including Product Portfolio management and PLC assessments.
- Ability to plan and accomplish changes in companies including the organisation in relation to up- or down scaling of the manufacturing facilities in respect to technological processes, atomisation, cost level and risk related conditions.
- Ability to identify, obtain and process data and information for analysing and improving business systems.
- Ability to identify, assess and improve quality issues as well as implement quality assurance and management systems.

Competences:

- Capability to navigate, negotiate and being respected on all levels in an international organisation
- Optimise and design the Value Chain for supplying the product/service to customers to create the optimal profit and conditions for the company. Including allocation of the individual elements of the value chain to strategic locations for a total optimization of the flow of materials and information.
- Ability to handle expatriation, including culture differences, respectfully protecting themselves and others against culture clashes in the management of subordinates.
- Manage projects in international companies at different organisational levels based on a holistic approach and firm economical insight.
- Manage the individual elements of the value chain covering; Organization, Plan, Source, Make, Deliver, Return and Enable processes.

Professional competence Who is a GMM engineer?

A Bachelor of Engineering in Global Management and Manufacturing will be one of the company's key employees in relation to international production and cooperation. The GMM engineer will often work globally within business management, production and services in close cooperation with both customers and suppliers around the world. A GMM engineer will typically be involved in the design and optimisation of global supply chains.

The jobs will primarily be in the private sector for goods and services, but also employment in public organisations with international collaboration is within the frame.

Typical job content:

International business development

Define business projects and implementation plans for global business development in close relation to optimising the total value and supply chain.

Process and operations management

Improvements in production, logistics and Supply Chain. Design and root-cause process analysis to evaluate the possibilities for continuous improvement. Project management and stakeholder analysis, supporting the implementation of optimised processes.

Supply chain system implementation and development

Process and workflow optimisation within the Supply Chain and the company. Manage ERP-system integration and perform restructuring and support throughout the organisation.

Production and logistics management

Handle inbound and outbound logistics, manage shop floor operators, optimise production, be a change agent, motivate employees, organise international SOP's.

Key account managers

Management of relationships with vital customers in business to business environments.

Expats

Expatriation from a parent company to subsidiaries, for engineering, management and business tasks.

Consultant / manager of international Supply Chain networks

Align the supply chain with the company strategy and establish the needed control systems for continued improvement of the operational units. Establish and design the system for flow of goods from raw materials to end user. Optimise the value chain to maximise efficiency and reduce costs.

Distribution and transport management.

Management of a part of the supply chain from manufacturing/warehouse to customers in the most cost efficient and less time consuming way.

In/Outsourcing and sourcing management

Strategic and operational purchasing, procurement and assessment of suppliers.

Engineers/managers in virtual networks

Product or business development in a global context either in customer relations or internally.

Manufacturing strategies and systems

Develop concepts for manufacturing systems in a globalised networks. Evaluate the level of automation according to the level of qualification and cost of labour. Establish operations in a multicultural context.

International organisational corporation

Manage international corporation in relation to company acquisition, corporate social responsibility, legal disputes and issues, organisational changes.

Programme structure

Explanatory comments to programme structure

1. Students are encouraged to complete the 5th semester at a foreign university. Please note that the courses must be approved by the Academic Study Board of the Faculty of Engineering.
2. The programme includes workshop training (6 ECTS) for students who lack basic practical skills related to the BEng programme.

Cities

Odense

Language

English

▼ § 3.1 - The structure of the programme

The subject columns

The GMM engineer's qualifications obtained during the education are based on six subject columns. The column elements are linked together during the semesters in semester themes with a semester project and lectures in theory and concepts.

The subject columns are:

- Supply Chain Management
- International qualifications
- Materials, Processes and Quality
- Financial and Managerial Accounting
- Basic Applied skills
- Personal and learning skills

The subject column: Supply Chain Management

The purpose of this subject column is to provide students with an in-depth knowledge of the Supply Chain and its individual elements. The knowledge covers the strategic, tactical and operational level, for students to be able to develop, (re)-design and connect the elements to form efficient global value chains. Evaluation and choice of product, supplier, manufacturing system, location, flow and distribution strategies to form cost effective and customer satisfying networks is of great importance in this subject column.

The skillset will focus on analytical techniques, models and tools that address a wide range of supply chain management issues.

The subject column includes the following elements:

Understand, analyse and improve Supply Chain Networks

- Inventory Management & Planning
- Materials management, Manufacturing & Capacity planning

Semester 7	Final Project <u>T100008101</u> (30 erts)			
Semester 6	Industrial Engineering Training <u>T100007101</u> (30 erts)			
Semester 5	Experts in Team Innovation * <u>T700012101</u> (10 erts)		Electives* (20 erts)	
Semester 4	International Business Law <u>T100005101</u> (5 erts)	Managerial Accounting 2 <u>T100002101</u> (5 erts)	Supply Chain Management 4 <u>T100004101</u> (5 erts)	Improving the Performance of Global Supply Chains <u>T100003101</u> (15 erts)
Semester 3	Basic Applied Science 3 <u>T100017101</u> (10 erts)		International Qualifications 3 <u>T100019101</u> (5 erts)	Executing Manufacturing Strategy - semester theme 3 <u>T100018101</u> (15 erts)
Semester 2	Basic Applied Science 2 - GMM module <u>T100026101</u> (10 erts)		Semester theme: Planning and Managing Company Processes <u>T100001101</u> (20 erts)	
Semester 1	Basic applied science 1 <u>T100015101</u> (10 erts)		Semester theme: Global Supply Chains <u>T100016101</u> (20 erts)	

Workshop Course SCM-lab <u>T110002101</u> (2 erts)
Workshop Course in Company Processes <u>T110000101</u> (2 erts)
Drawing interpretation, Tolerance and Measuring Technology <u>T110001101</u> (2 erts)

-  = 1st year test
-  = IAH
-  = Elective
-  = Workshop course

Order management flows and ERP systems

- Data capture, Performance management
- Supplier Relationship Management (SRM), Procurement, Purchasing procedures and planning & control of inbound logistics
- Production systems, Manufacturing strategies, SI&OP and Forecasting
- International network optimisation, Location decisions, Logistics & Distribution channel design
- Cradle-to-Cradle & Product Life Cycle management and Reverse logistics
- Supply Chain Risk management
- Predominant frameworks, concepts and philosophies for optimisation.

The subject column: International qualifications

The purpose of the subject column is to provide students with an in-depth knowledge and overview of international business and CRM, allowing the students to interact and communicate in world-wide cultural and business environments. Furthermore, it provides students with the ability to assess and exploit business solutions on a global scale.

The subject column includes the following elements:

Customer Relationship Management (CRM)

- International strategic issues
- International marketing and competitiveness
- Market entry strategy and -modes
- Internationalisation

Cultural understanding

- Political, legal and technological environments
- The international socio-cultural environment
- Leadership & Change Management
- Configuration of international teams and organisations
- International Business Law, International jurisdiction and enforcement
- Due Diligence activities by acquisitions

International logistics

- Modes of Transport
- Understanding transport agreements and documentation.

The subject column: Materials and Processes

The purpose of the subject column is to provide students with a fundamental understanding of industrial materials and manufacturing processes. Providing students with insight into master data, quality management and failure prevention as well as specifications needed to support international manufacturing.

The subject column includes the following elements:

Specifications

- Material and manufacturing documentation
- Drawings, tolerances and geometries
- Master data definition & application

Materials

- Material structured
- Material selection
- Mechanical properties of materials, Material test methods
- Material shaping, forming, casting, moulding & joining processes

Quality

- Quality planning and control
- Cost of quality, Failure prevention and recovery
- Predominant frameworks, concepts and philosophies for Quality Management

Processes

- Capacity calculation and detailed manufacturing layouts
- Time & Work study techniques

Warehouse, assembly and packaging techniques.

The subject column: Financial and Managerial Accounting

The purpose of the subject column is to provide students with knowledge of managerial and financial accounting and with an understanding of internal and external reporting & controlling. Students will gain knowledge of analysing the financial information as well as other types of information, which are intended primarily to assist managers in meeting the goals of the organisation.

Furthermore, the subject column enables students to use external reporting to provide information to shareholders and other stakeholders. As well as to evaluate a company's past economic score-cards to support decision-making, often directed by authoritative guidelines that may differ across countries.

The subject column includes the following elements:

Management Accounting

- Costing systems, Traditional cost allocation and Activity Based Costing
- Cost-volume-profit relationships and income effects of alternative stock-costing methods
- Relevant information for decision making; pricing, transfer pricing, target costing, customer profitability analysis and measuring variances and quantity effects
- Capital investment decisions
- Control systems, performance measurement and sensitivity analysis

Financial Accounting

- Measuring and reporting financial position and performance. Reporting additional measures of performance (financial KPI's)
- Measuring and reporting on P/L, Balance sheets and Cash flows for analysing and interpreting financial statements.

The subject column: Basic Applied Science

The subject column Basic Applied Science covers a range of general competences which are basic knowledge or tools to be used in the field of a GMM Engineer. This area includes Project Planning, Theory of Science, Statistics, and IT-skills, among others.

The subject column includes the following elements:

Project Management

- Covering the different aspects of project management being able to plan, structure and manage a project using the right tools in order to reach the project objectives
- Understanding the dynamics and different roles in teamwork in order to manage a project organization

Theory of Science

- Analysing, recognising and applying scientific methods and approaches when working as engineers

Statistics

- Understanding basic statistical concepts
- Applying statistics for analysis of quality and operations data & processes
- Using statistics to analyse markets of supply and demand

IT-skills

- Practical application of spread-sheets to support decision-making
- Capture and analyse data (e.g. ERP data) using spread-sheet functionality.

The subject column: Personal and Learning Qualifications

In general the programme provides students with personal qualifications as described in the DSMI model.

In particular GMM-students will also:

- Improve their proficiency in English oral and written communication
- Develop an ability to perform and cooperate in cross-cultural working environments
- Develop a self-awareness of own cultural values and profile
- Develop a talent to present business cases and proposed solutions.

Semester Themes

1st semester: Global Supply Chains

2nd semester: Planning and Managing Company Processes

3rd semester: Executing Manufacturing Strategy

4th semester: Improving the Performance of Global Supply Chains

5th semester: Specialisation/ Internationalt semester

6th semester: Internship

7th semester: Final Project

Description of 1st semester

SEMESTER THEME

Global Supply Chains

VALUE ARGUMENTATION

The overall objective of the semester is to give the students a holistic understanding of supply chain management and supply chain elements. The students will learn how to manage projects and understand team structures and cooperation. Furthermore various international environments are introduced as well as markets of supply & demand. A set of basic engineering skills, covering Materials & Processes and Statistics, will support the semester theme.

COMPETENCE GOALS

The students will:

- have a broad view of international business and globalisation processes, through the understanding of the political, economic and cultural business environment
- have basic knowledge of multicultural aspects in business
- understand the global market and different entry strategies
- understand the fundamentals of the internalisation process
- have a fundamental understanding of organisational structures
- be able to structure, plan a project and understand how to organise teamwork and work as an efficient team member in multicultural teams
- be able to read and understand technical drawings
- understand fundamental properties of engineering materials and the principles of manufacturing processes
- have a fundamental understanding of statistics used in business applications
- be able to use intermediate features of spreadsheets
- be able to identify the main elements of a supply chain and how they interact.

SEMESTER STRUCTURE

GX-SET1 – Global Supply Chains (20 ECTS)

- International Qualifications 1
- Supply Chain Management 1
- Semester Project 1

GX-BAS1 – Basic Applied Science 1 (10 ECTS)

- Statistics
- Material and Processes 1

Both modules are compulsory and together with GX-SET2 – Planning and Managing Company Processes (20 ECTS) on 2nd semester they constitute the first year examination. The first year examination must be passed before starting the 3rd semester.

Description of 2nd semester

SEMESTER THEME

Planning and Managing Company Processes

VALUE ARGUMENTATION

The overall objective of the semester is to give the students a deeper knowledge and understanding of the processes and systems in the Supply Chain. The students will learn how to design manufacturing operations as well as how to execute manufacturing planning. Warehouse handling and how to control different inventories located in the supply chain will be covered as well. Finally students will be able to perform a systematic evaluation when choosing and planning supply and transportation through basic knowledge of sourcing, procurement and external logistics.

COMPETENCE GOALS

The student will be able to:

- understand the structure of ERP-systems and how it supports business operations
- operate and carry out simple workflows in ERP-systems
- extract data from ERP-systems using Spread-sheet functionality to structure and analyze data
- design effective work stations for manufacturing and packaging
- determine time standards and calculate (production) capacity
- design layouts for manufacturing and assembly
- read and understand linear and geometric tolerances as well as common standards
- understand, create and work with master data for planning purposes
- understand inventory fundamentals and be able to see inventory in its overall context and in-interactions with company activities and the overall supply chain objectives
- use different methods of forecasting
- apply a fundamental understanding of procurement, sourcing, and management of suppliers
- know the basics within negotiation and supplier audit
- perform planning and calculation of transportation within the supply chain
- understand the importance of basic planning data and their connection to the planning of tech-nology, logistics and economy.

SEMESTER STRUCTURE

GX-SET2 – Planning and Managing Company Processes (20 ECTS)

- International Qualifications 2
- Supply Chain Management 2
- Semester Project 2

GX-BAS2 – Basic Applied Science 2 (10 ECTS)

- ERP and Excel
- Material and Processes 2

Both modules are compulsory.

Furthermore, GX-SET2 – Planning and Managing Company Processes is part of the first year examination. Together with the modules GX-SET1 – Global Supply Chains and GX-BAS1- Basic Applied Science 1, it has to be passed in order to continue on the 3rd semester of the GMM programme.

CONTEXT

Where the previous semester applies a holistic view on the fields of GMM, this semester aims to dig deeper into different operations, processes and systems within the Supply Chain. Most of the subjects related to this semester have been introduced on the 1st semester. In this way, students have experienced how subjects interconnect, before going to a deeper level of understanding.

In relation to the admission requirements and different educational background of the students, the second semester carry on aligning and supporting the teamwork skills, proper study techniques and understanding of the GMM-engineer identity. This is done e.g. by integrating:

- Extra focus in GX-SET2, supporting the teamwork by providing personal supervision and defining each student's specific team profile incl. strength and weaknesses.
- Contribution towards the understanding of the programme identity and study technique based on meetings with students on higher semesters or graduated students.

Description of 3rd semester

SEMESTER THEME

Executing Manufacturing Strategy

VALUE ARGUMENTATION

The semester will move to the strategic manufacturing level, addressing different production systems and how to formulate a competitive manufacturing strategy, based on competitors, customers and the current company state. To support both strategy, performance and risk management students will get a firm knowledge of Managerial Accounting to support decision-making in a company.

In order to support the capabilities and continuous improvements of the company, the semester will cover Quality Management at both the operational and strategic level, also supporting aspects when sourcing internationally.

In relation to international strategic considerations students will get acquainted with establishing or acquiring multi-cultural companies focusing at Due Diligence, Corporate Social Responsibility and Change Management.

COMPETENCE GOALS

The student will:

- Understand how high-level strategic decisions will lead to a range of lower operational decisions
- Understand how to focus the factory using, or moving towards, the appropriate manufacturing systems
- Be able to formulate and plan the implementation of a Manufacturing Strategy
- Be acquainted with Global strategies and how to implement organizational change in multi-cultural corporations
- Understand the process when acquiring companies also considering Corporate Social Responsibility
- Be able to evaluate the effect of different strategic and operational decisions in depth, using the principles of international managerial accounting
- Be able to use managerial accounting in relation to the cost perspective, decision-making and capital investments, control systems and sensitivity analysis
- Understand in-depth the principles of Quality management and make use of quality tools to improve process and product performance throughout the supply chains
- Know how to set up systems to measure and control the quality as well as manufacturing performance.

SEMESTER STRUCTURE

GX-SET3 – Executing Manufacturing Strategy (15 ECTS)

- Supply Chain Management 3
- Semester Project 3

X-GIQ3 – International Qualifications 3 (5 ECTS)

GX-BAS3 – Basic Applied Science 3 (10 ECTS)

- Quality Management
- Managerial Accounting 1

All the modules are compulsory.

CONTEXT

Based at both a holistic and detailed level of understanding the Supply Chain, the 3rd. semester adds the level of managing and controlling the operations in global companies. With the holistic and detailed understanding of Supply Chain elements, processes and systems from the previous two semesters, the focus will move towards the more strategic and economical aspects in leadership, as well as securing and improving quality. In order to support designing and implementing global strategies, this semester adds the international perspective in establishing and acquiring international companies considering organizational changes, cultural implications as well as CSR.

Description of 4th semester

SEMESTER THEME

Improving the Performance of Global Supply Chains

VALUE ARGUMENTATION

The overall objective of the semester is to strengthen the students understanding of global strategies and international manufacturing, allowing them to analyse and improve existing manufacturing processes and supply chains. They will be supported doing this, by being provided with knowledge of predominant improvement concepts and frameworks; e.g. Lean and SCOR, as well as financial management and international Business law.

For the purpose of using scientific methods in projects, the student will gain knowledge about science theory.

In order to apply the theory and have a practical approach towards the improvement of existing manufacturing systems and supply chains, the students will be working on a real case project provided by a company. The collaboration with companies also serves the purpose of preparing the student for the internship and final project.

COMPETENCE GOALS

After the semester the student will:

- Have a framework for analysing manufacturing strategy and the performance of the supply chain.
- Be able to identify and analyse complex problems in relation to manufacturing and supply chain management
- Develop practical solutions & concepts using prevalent improvement programs such as the Lean Concept, the SCOR Model, Six Sigma and others
- Know how to structure project work, formulate business cases & implementations plans, as well as issue the relevant reporting systems. Be able to manage improvement projects
- Be able to cooperate and communicate at different levels in a company using gained knowledge and gathered data
- Be able to investigate, calculate best locations and establish a network of manufacturing sites, domestic and international, including establishment of basic distribution systems
- Be able to select and organize a manufacturing facility according to one out of several manufacturing philosophies
- Understand how Sales & Operations Planning can be used to create a profitable balance between sales and manufacturing output
- Be able to understand, measure and report financial position and performance. Reporting additional measures of performance (financial KPI's)
- Be able to understand, measure and report on P/L, Balance sheets and Cash flows for analysing and interpreting financial statements
- Manage constraints, life-cycle costing and supply chain management
- Possess knowledge of harmonization and international accounting standards and provide relevant information to shareholders, creditors and other stakeholders
- Know how to describe the legal disputes likely to arise in international transactions and identify the legal issues dealt with in cross-border trade as well as carry out basic office-level legal risk management
- Get a fundamental knowledge of the history of modern science and its development, as well as be able to discern the most central positions, terms and models within science. Get the ability to distinguish between science and pseudo-science, as well as the knowledge of what it takes to make this distinction.

SEMESTER STRUCTURE

GX-SET4 – Improving the Performance of Global Supply Chains (15 ECTS)

- International Qualifications 4
- Semester Project 4

GX-IBL – International Business Law (5 ECTS)

GX-MAA2 – Managerial Accounting 2 (5 ECTS)

GX-SCM4 – Supply Chain Management 4 (5 ECTS)

The four modules are compulsory.

CONTEXT

This semester build on both the managerial economical and international focus from the previous semester, with focal points in financial accounting and International Business Law. The firm knowledge of global supply chains allows the students to start concentrating on optimising existing business and supply chains, which is the main objective of the semester. The optimisation will be based on real companies' issues through the project work. Working with real company projects prepares the students for the internship on the 6th semester and the final bachelor project on the 7th semester.

Description of 5th semester

SEMESTER THEME

Specialisation/International semester

The students can choose between studying at a foreign university on courses preapproved by the academic study board or continue their studies at the University of Southern Denmark as described below.

VALUE ARGUMENTATION

The students should develop an understanding of working together with students from other programmes and cultures, at foreign universities or in the project Experts in Team Innovation. Particularly if going abroad, the students develop personal, international and cultural competences, which is an important part of the GMM programme.

The semester strengthens the student's possibility to form their own profile as they will have the opportunity to choose elective courses of special interest and related to the GMM profile.

COMPETENCE GOALS

The students will after the semester be able to:

- participate in an interdisciplinary cross cultural group, being able to handle and solve conflicts
- use Project Management tools in connection with interdisciplinary projects
- acquaint themselves with other academic disciplines at a foreign university or in an in-terdisciplinary group, and apply the knowledge in the joint project work
- reflect on own experiences with interdisciplinary and multi-cultural collaboration
- understand how the particular GMM academic knowledge and skills can provide value and be adapted into an interdisciplinary project
- recognise the gained knowledge of special interest within the GMM academic field.

SEMESTER STRUCTURE

Elective courses equivalent to 30 ECTS at a foreign university or

F-EIT5 – Experts in Team Innovation (10 ECTS)

Electives courses equivalent to 20 ECTS

The module F-EIT5 is compulsory if studying at the University of Southern Denmark

CONTEXT

After concluding the first four semesters, students have acquired the essential academic knowledge of the GMM programme and will be ready to add related knowledge of own interest, in order to specialise and prepare for further studies after graduation. In particular, the semester will focus in personal development both at an interdisciplinary and a cross-cultural level. Working and engaging in an international setup with people of other cultures is a core element of the programme.

Description of 6th semester

SEMESTER THEME

Internship

The 6th semester is constituted by the Internship. The Internship emphasises the practical and professional dimensions of the bachelor of engineering study programme and as such constitutes a central part of the programme. The practical execution of the internship is described in the Faculty Internship Concept, available on the faculty website.

VALUE ARGUMENTATION

During the internship, the students solve daily tasks and projects in a real business environment, making practical use of the competencies acquired in the programme so far. During their studies and through project work and company visits students have become familiar with practical solutions. Particularly the company project on the 4th semester and the personal development on the 5th semester contribute to preparing the students for the more practical approach in the company. The 6th semester will specifically contribute to the student's ability to navigate and understand a company organisation and is a prerequisite for being able to apply practical oriented solutions in the final project of the 7th semester.

COMPETENCE GOALS

To expand the student's understanding of business in general develop the student's creativity, independence and interpersonal skills as well as developing the student's competencies in the following areas:

- Communication with companies when looking for a job
- Experience in transforming the core theories of the study programme into practical, feasible projects
- Experience in acquiring knowledge during the completion of projects
- Understanding the organizational, economic, social and occupational conditions of a company
- Gaining insight into the social and administrative environments, including the communication and cooperation between co-workers at different levels as well as administrative procedures
- Experience in presenting results, orally and in writing, to groups of recipients with different occupation, education and background.

SEMESTER STRUCTURE

GX-IPK – Industrial Engineering Training (30 ECTS)

The module is compulsory.

CONTEXT

The internship will serve as the most important link between the theoretical studies and the ability to apply the theory in real company situations. At the time of the internship, students have concluded most of the theory and have achieved a high level of the knowledge needed in the companies. Through the practical oriented project work and company contacts, students have been prepared to enter a company. On the 7th semester, students complete their final project in collaboration with a company and the internship will prepare them for interacting with the company.

Description of the 7th semester

SEMESTER THEME

Final Project

VALUE ARGUMENTATION

During the 7th semester, the student writes the final project. The project is written in cooperation with a company and gives the student an opportunity to demonstrate and further develop competences needed to analyse and devise solutions to a complex practical problem associated with the central subjects of the programme. Through the final project students are able to combine the knowledge and skills gained during the study, solving larger complex engineering issues including several elements within the academic field of a GMM engineer. In this way, students will develop the professional competences needed in their future job.

COMPETENCE GOALS

By working on the final project, the students expand their knowledge in the principles and theories of the engineering profession and strengthen their skills in professional and creative problem solving in relation to complex engineering problems. Through writing a final project, the student's competencies in professionally managing a complex project is enhanced, including the ability to:

- organise the analytical process in relation to a complex problem
- phrase and define a problem
- plan time and resources
- assess and prioritise a set of problem solving strategies
- evaluate a set of alternative solutions in relation to a given complex problem
- evaluate the economic consequences of a proposed solution
- consider international aspects in business solutions
- unite theory and practice in solving a specific problem
- communicate the knowledge and results achieved
- be critical and reflective regarding the work process as well as the solution.

SEMESTER STRUCTURE

GX-PRO7 - Final Project (30 ECTS)

The module is compulsory.

CONTEXT

The final project concludes the studies; gathering a majority of the academic knowledge, skills and internship experience gained through the programme into one combined practical task, solving a real project in collaboration with (and working in) a company. In this way, students develop the necessary skills and competences required in their future engineering job.

▼ § 3.1.1 - Connection between entry requirements and the first year

Students entering the GMM programme will all be qualified at an intermediate level in Math, Physics and English, but might have quite different educational and cultural backgrounds. In order to provide the students with a good foundation for entering the programme, the following are integrated in the 1st semester:

- To align the level of the students varying competences using spread sheets for calculation and data analysis, a beginner/intermediate course is integrated within the statistics course
- One day of teambuilding activities giving insight into team roles, behaviour and conflicts
- A careful introduction to the programme/semester with a focus on structure, courses, teamwork and exams. Also the e-learning system will be introduced
- Extra focus in supervision of groups in order to make sure students get familiar to working in groups and handle conflicts
- The semester is structured from the idea that it presents and touches important elements of the programme in general, aiming to give students a better understanding of the study programme and what kind of career paths it will lead towards.

Company visits and guest lecturing from students at later semesters or graduated GMM students are integrated during the semester. This is done in order to increase the understanding of the GMM identity as early as possible and pass on proper study technique.

▼ § 4 - Course Descriptions

▼ § 4 - Compulsory courses

Profile divided course descriptions

Bachelor of Engineering, Global Management and Manufacturing

Course descriptions in the curriculum

▼ Semester theme: Global Supply Chains

▼ Course ID

T100016101

▼ Course Title

Semester theme: Global Supply Chains

▼ ECTS value

20

▼ Internal Course Code

GX-SET1

▼ Responsible study board

Academic Study Board of the Faculty of Engineering

▼ Drawing interpretation, Tolerance and Measuring Technology

▼ Course ID

T110001101

▼ Course Title

Drawing interpretation, Tolerance and Measuring Technology

▼ ECTS value

2

▼ Internal Course Code

GX-VK1

▼ Responsible study board

Academic Study Board of the Faculty of Engineering

▼ Basic applied science 1

▼ Course ID

T100015101

▼ Course Title

Basic applied science 1

▼ **ECTS value**

10

▼ **Internal Course Code**

GX-BAS1

▼ **Responsible study board**

Academic Study Board of the Faculty of Engineering

▼ **Semester theme: Planning and Managing Company Processes**

▼ **Course ID**

T100001101

▼ **Course Title**

Semester theme: Planning and Managing Company Processes

▼ **ECTS value**

20

▼ **Internal Course Code**

GX-SET2

▼ **Responsible study board**

Academic Study Board of the Faculty of Engineering

▼ **Basic Applied Science 2 - GMM module**

▼ **Course ID**

T100026101

▼ **Course Title**

Basic Applied Science 2 - GMM module

▼ **ECTS value**

10

▼ **Internal Course Code**

GX-BAS2

▼ **Responsible study board**

Academic Study Board of the Faculty of Engineering

▼ **Workshop Course in Company Processes**

▼ **Course ID**

T110000101

▼ **Course Title**

Workshop Course in Company Processes

▼ **ECTS value**

2

▼ **Internal Course Code**

GX-VK2

▼ **Responsible study board**

Academic Study Board of the Faculty of Engineering

▼ **Executing Manufacturing Strategy - semester theme 3**

▼ **Course ID**

T100018101

▼ **Course Title**

Executing Manufacturing Strategy - semester theme 3

▼ **ECTS value**

15

▼ **Internal Course Code**

GX-SET3

▼ **Responsible study board**

Academic Study Board of the Faculty of Engineering

▼ **International Qualifications 3**

▼ **Course ID**

T100019101

▼ **Course Title**

International Qualifications 3

▼ **ECTS value**

5

▼ **Internal Course Code**

X-GIQ3

▼ **Responsible study board**

Academic Study Board of the Faculty of Engineering

▼ **Basic Applied Science 3**

▼ **Course ID**

T100017101

▼ **Course Title**

Basic Applied Science 3

▼ **ECTS value**

10

▼ **Internal Course Code**

GX-BAS3

▼ **Responsible study board**

Academic Study Board of the Faculty of Engineering

▼ **Workshop Course SCM-lab**

▼ **Course ID**

T110002101

▼ **Course Title**

Workshop Course SCM-lab

▼ **ECTS value**

2

▼ **Internal Course Code**

GX-VK3

▼ **Responsible study board**

Academic Study Board of the Faculty of Engineering

▼ **Supply Chain Management 4**

▼ **Course ID**

T100004101

▼ **Course Title**

Supply Chain Management 4

▼ **ECTS value**

5

▼ **Internal Course Code**

GX-SCM4

▼ **Responsible study board**

Academic Study Board of the Faculty of Engineering

▼ **Managerial Accounting 2**

▼ **Course ID**

T100002101

▼ **Course Title**

Managerial Accounting 2

▼ **ECTS value**

5

▼ **Internal Course Code**

GX-MAA2

▼ **Responsible study board**

Academic Study Board of the Faculty of Engineering

▼ **International Business Law**

▼ **Course ID**

T100005101

▼ **Course Title**

International Business Law

▼ **ECTS value**

5

▼ **Internal Course Code**

GX-IBL

▼ **Responsible study board**

Academic Study Board of the Faculty of Engineering

▼ **Improving the Performance of Global Supply Chains**

▼ **Course ID**

T100003101

▼ **Course Title**

Improving the Performance of Global Supply Chains

▼ **ECTS value**

15

▼ **Internal Course Code**

GX-SET4

▼ **Responsible study board**

▼ Experts in Team Innovation

▼ Course ID

T700012101

▼ Course Title

Experts in Team Innovation

▼ ECTS value

10

▼ Internal Course Code

F-EIT5

▼ Responsible study board

Academic Study Board of the Faculty of Engineering

▼ Industrial Engineering Training

▼ Course ID

T100007101

▼ Course Title

Industrial Engineering Training

▼ ECTS value

30

▼ Internal Course Code

GX-IPK

▼ Responsible study board

Academic Study Board of the Faculty of Engineering

▼ Final Project

▼ Course ID

T100008101

▼ Course Title

Final Project

▼ ECTS value

30

▼ Internal Course Code

GX-PRO7

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

5.1.2 An examination is either graded in accordance with the Danish 7-point grading scale, or is assessed as 'passed/failed' (bestået/ikke-bestået), or as 'approved/non-approved' (godkendt/ikke-godkendt). The Bachelor project is always graded in accordance with the 7-point grading scale.

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 assessment basis for a study activity is 'tuition attendance', this assessment is made by a teacher on the basis of criteria students are informed of at the beginning of the course. The condition for achieving the assessment 'approved' is that the student has achieved the objectives established for the course to such an extent that the assessment 'approved' or a grade of at least 2 would be given.

5.1.4.1 The basis for approval 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.

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

5.1.5 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' for all tests assessed 'approved/non-approved'
- approval of the practical workshop training, and
- approval of the engineering Internship.

▼ § 5.2 - Special exams

5.2.0 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 accepted on the Bachelor of Engineering 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 programme.

5.2.1.2. Study start test for students admitted in 2019:

- Attendance 2-6 September 2019 (all days).

5.2.1.3. Study start test for students admitted in 2018:

- MCQ test. The test must be passed no later than 7 September 2018.
- Attendance 3-7 September 2018 (all days).

5.2.1.4 Study start test for students admitted in 2017:

- Attendance 4-8 September 2017.
- Students in Odense: Attendance in the Faculty introductory lecture.

5.2.1.5 Students have two attempts to pass the study start test.

- Reexam for students admitted in 2019 is held 9-13 September 2019 (all days). The reexam is based on attendance.
- Reexam for students enrolled in 2018 is held 10-14 September 2018. The reexam is based on attendance and MCQ-test.
- Reexam for students admitted in 2017 is held 11-15 September 2017. The reexam is based on attendance.

5.2.1.6 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 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. 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 an 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 of engineering 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 final project and the semester projects 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 Final 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 Final Project, but does not apply to credits transferred from other examinations.

▼ § 5.5 - Exam language

5.5.1 For **study programmes offered in Danish up to and including 2nd semester**: 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 For **study programmes offered in Danish up to and including 4th semester**: 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 For **study programmes offered in Danish, 5th-6th semesters** The courses are offered and taught in English. The examination language is English. The Academic Study Board may grant dispensation from this rule.

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

▼ § 5.6 - Forms of assessment

Purpose

5.7.1 The purpose of the examination is to document whether and to which extent the student's qualifications match the learning goals specified in the Ministerial Order concerning Bachelor of Engineering programmes, the Curriculum and the respective semester plans. The final examination provides the basis for issuing a diploma.

Examination forms

5.7.2 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.

5.7.3 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.

5.7.4 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

5.7.5 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 final project.

Sound and/or Image Recordings

5.7.6 The use of sound and image recordings during an 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

5.7.7 The use of examination aids is specified in the individual module descriptions and semester plans.

▼ § 5.7 - Irregularities at exams

Disciplinary Action

5.8.1 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.

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

5.8.3 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).

Errors and Defects in an Examination

5.8.4 In cases of errors or defects of 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.

5.8.5 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

5.9.1 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.

5.9.2 The deadline for applying for special examination conditions is 1 September for the winter examination term and 1 February for the summer examination term. In case of health impairments, the Academic Study Board may approve special examination conditions for the rest of the bachelor of engineering programme.

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

▼ § 5.9 - Ordinary exams

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

5.10.2 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

Reexams and Make-up Exams

5.11.1 Students who did not pass the ordinary examination and students who have been prevented from attending the examination due to illness or other unforeseen circumstances can register for a re-examination.

5.11.2 Make-up examinations are held at the same time as re-examinations.

5.11.3 Re-examinations are held during the same examination term 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, exams can also be held in December and May. Examinations are not held in July, unless warranted by special circumstances.

5.11.4 The student shall register for a re-examination within eight days after publication of the results of the ordinary examination. Students who have been absent from the ordinary examination, shall register for a re-examination within 8 days from the date the ordinary examination was held.

5.11.5 Students cannot withdraw from the registration for re-examination and it will count as a failed examination attempt, if the student is absent from the re-examination, unless the Academic Study Board has granted dispensation from this rule due to extraordinary circumstances.

5.11.6 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 final project, however, cannot be changed.

Consequences for not having passed an Exam by 2nd Attempt

5.11.7 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.

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

▼ § 5.11 - Exam attempts

5.12.1 A passed examination cannot be retaken.

5.12.2 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.

5.12.3 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

15.13.1 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

15.13.2 If the student is absent from an examination, this leads to the student losing an examination attempt. If the evaluation of 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

15.13.3 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

5.15.1 Examinations are arranged as individual or group examinations.

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

5.15.3 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 final 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 earlier study programmes at the same educational level immediately after enrolling in the study 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 study programme 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 of engineering study 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 pre-approved 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 a student under the obligation of sending documentation for passed study activities to the Academic Study Board.

6.2.5 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.

6.3.3 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 (hard copy) or a certified pdf-file, showing the passed study activities.

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.

▼ § 6.4 - Exemptions

6.4.1 Practical Workshop Training

6.4.1.1 For each programme it may be decided that students with a previous completed vocational education relevant to the area of enrolment in question, and students enrolled in the engineering

programme on the basis of a successfully completed htx (General Upper Secondary School Leaving Certificate, Advanced Level, Higher Technical Examination) programme with a technical specialisation relevant to the chosen area of enrolment, will be eligible for credit transfer towards the practical workshop training and will thus not have to participate in the practical workshop training. Such students will receive written information on this from the University. Other students who wish to be exempted from the course are requested to approach the Head of Programme.

6.4.2 Industrial Engineering Training (Internship)

6.4.2.1 The engineering internship constitutes an integral part of the Bachelor of Engineering programme, and as such, no exemption will usually be granted from taking the Internship. In quite extraordinary circumstances, however, an application for exemption from the engineering internship may be submitted to the Academic Study Board, which will make the final decision on the basis of an individual assessment.

▼ § 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 is enrolled on one of SDU's talent programmes.

Course and Exam Withdrawal

7.1.8 Withdrawal is not permitted and absence from an examination will be registered as 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 in question is held.

▼ § 7.2 - Access to Masters level courses

▼ § 7.3 - Deadline for programme completion

Maximum Study Period

7.3.1 The Bachelor of Engineering programme must be completed no later than four and a half 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

7.4.1 Minimum Pass Grade Requirement: 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.

7.4.2 Activity requirement: See, SDU'S rules on student activity.

7.4.2.1 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 can grant dispensation from SDU's rules on student activity.

▼ § 7.5 - Thesis

7.5.1 The final project is usually completed during the seventh semester of the programme. The final project must contain an independent, experimental or theoretical discussion of a practical problem related to the core subjects of the study programme.

7.5.2 The project is normally completed jointly by two students. The Head of Programme may permit completion of a final project by a single student or jointly by a maximum of three students.

7.5.3 The final project concludes the study programme. In special circumstances, the Academic Study Board may dispense with the rule that the final project concludes the Bachelor of Engineering programme.

7.5.4 The choice of a subject for the final project must have been made by the start of the seventh semester.

7.5.5 The final project must be completed in the course of a semester. As a rule, the starting date and delivery deadline for a final project to be completed in the course of the autumn semester are the first workday in September, and the month of January, respectively, and for a project to be completed in the course of 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.

7.5.6 The Contract for the Final Project is approved by the relevant Head of Programme and the academic supervisor. An approved Contract for the Final Project may be amended only if a 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.

7.5.7 The deadline for delivery specified in the Contract for the Final Project is binding, and failure to observe the deadline will mean that the project will be considered failed, and the student must register for tuition in the following semester, sign a new final project contract and prepare a new final project. A new project is defined as a new project description with a new title. In extraordinary circumstances, the Academic Study Board may grant dispensation from this provision.

7.5.8 The Final 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 Final project.

▼ § 7.6 - Change of profile

If there are profiles/specialisations on the Bachelor of Engineering study programme, the Academic Study Board may grant dispensation to change of profile/specialisation. A change of profile/specialisation may not lead to a prologation of the total study time of the student.

▼ § 7.7 - Individual activities

Individual Study Activities

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

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

7.11.3 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 final project.

7.11.4 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.

7.11.5 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.

7.11.6 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 courses in situations, where the obligatory course no longer is offered, the student has not used any 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

7.13.1 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 an 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. The Academic Study Board must have received the complete application no later than eight days prior to the meeting during which the application is to be processed.

▼ § 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 Faculty of Engineering's Secretariat and sent to tek@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

8.3.1 Complaints regarding procedural matters

8.3.1.1 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.

8.3.1.2 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.

8.3.2 Complaints about credit transfers and pre-approved credit transfers

8.3.2.1 Complaints about the refusal or partial refusal of pre-approved credit transfers or credit transfers for Danish or foreign course elements that have been passed can be submitted to the Qualifications Board when they related to academic issues in accordance with the Act on the Danish Assessment of Foreign Qualifications, etc.

8.3.2.2 The complaint must be submitted to the University no later than 4 weeks 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

9.7.1 The rules concerning the first year examination, which were valid at the time of admission and enrolment, apply on students admitted and enrolled on a Bachelor of Engineering study programme before 1 September 2015.

9.7.2 The rules concerning the study start examination and SDU's activity requirement do not apply on students admitted and enrolled on a Bachelor of Engineering study programme before 1 September 2015.

9.7.3 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 of Engineering study programme before 1 September 2016. I.e. these students must have completed the study programme within 7 years after the commencement of studies.

9.7.5 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. This is only possible by written application to the Academic Study Board of the Faculty of Engineering and the application must be enclosed a study plan made in consultation with the programme administrator. 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.

▼ § 9.1 - Legal basis

This curriculum is based on the provisions of:

- Danish Consolidated Act no. 1778 of 7. August 2019 concerning the Danish Act on Universities (Universitetsloven)
- Danish Consolidation Act no. 790 of 9. August 2019 on Academy Profession Programmes and Professional Bachelor Degree Programmes (LEP-loven)
- Danish Ministerial Order no 841 of 24 June 2018 on Academy Profession Programmes and Professional Bachelor Degree Programmes (chapter 1 - section 5(1-2) excluded - and chapters 3-4 and 6-7 only) (LEP-bekendtgørelsen),
- Danish Ministerial Order no. 211 of 27 February 2019 on the admission to academy profession programmes and professional bachelor degree programmes, as amended by the Ministerial Order no 663 of 28 June 2019
- Danish Ministerial Order no 1160 of 7 September 2016 on Bachelor of Engineering programmes
- Danish Ministerial Order no 1062 of 30 June 2016 on examinations and examiners related to university programmes, as amended by the Ministerial Order no 1503 of 28 November 2017, no. 1080 of 28 August 2018 and no. 878 of 26. August 2019 (Eksamensbekendtgørelsen)
- Danish Ministerial Order no 1500 af 2 December 2016 on examinations in advanced vocational programmes (Chapter 6 only), as amended by Ministerial Orders no. 1502 of 28 November 2017 and no. 1081 of 28 August 2018
- Danish Ministerial Order no 114 of 3 February 2015 on the Grading Scale and Other Forms of Assessment (Karakterbekendtgørelsen)

▼ § 9.2 - Academic Study Board

Academic Study Board of the Faculty of Engineering

▼ § 9.5 - Date of Study Board Approval

25-10-2019

▼ § 9.6 - Date of Deans Approval

04-09-2019