

Academic Regulations 2014, Bachelor of Engineering in Global Management and Manufacturing (GMM)

Applicable to students enrolled in September 2014 and onwards

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1. Framework provisions of the Academic Regulations

The Academic Regulations of the Global Management and Manufacturing Programme (GMM) is formulated by the Programme Coordinator and approved by the Board of Studies of the Aarhus School of Engineering (Science and Technology).

These Academic Regulations take effect on 1st September 2014.

2. Objectives of the study programme

The GMM programme entitles the graduates to use the title “Bachelor of Engineering in Global Management and Manufacturing”. The GMM programme aims at qualifying the graduate for further studies at master level. (Executive Order no. 527 of 21 June 2002) <https://www.retsinformation.dk/Forms/R0710.aspx?id=23949> (in Danish only).

3. The educational qualifications profile – knowledge, skills and competences

Knowledge

The Bachelor of Engineering in Global Management and Manufacturing study programme provides the students with knowledge about the following subjects:

1. A global view of business development in markets of supply and demand
2. Designing the product to the market by considering positioning, segmentation, marketing parameters and customer awareness in different cultures
3. In-depth knowledge about the strategic Global Supply Chain Networks, their elements, how they are interconnected and the context in which they operate
4. Detailed knowledge about establishing, organising and managing manufacturing processes and assets
5. Thorough knowledge about different company aspects within pollution, health and safety and tacit factors to consider
6. International legal aspects within trading i.e. laws, conventions, bilateral agreements, regional conditions, governmental influence, etc.
7. A deep and wide knowledge of Supply Chain and Operations Management, warehouse management, procurement, sourcing, distribution and ERP-systems in a global, inter-group and local context
8. A profound knowledge about the company’s internal and external accounting, financing and control systems
9. Economical evaluation of different countries’ macroeconomic situation within investment and global sourcing
10. Different labour market systems
11. Project management in cross-cultural environments

Skills

The Bachelor of Engineering in Global Management and Manufacturing study programme provides the students with the following skills:

1. Ability to assess, calculate and propose operational investment possibilities in different markets and countries
2. Ability to manage and carry out global management activities
3. Ability to communicate in business English and have knowledge of international topics
4. Ability to plan “Product to Market” activities
5. Ability to plan and accomplish changes in companies including the organisation in relation to up- or down scaling the manufacturing facilities in respect to technological processes, atomisation, cost level and climatically conditions
6. Ability to identify, obtain and process needed data and information for analysing and improving business systems

Competences

The Bachelor of Engineering in Global Management and Manufacturing study programme provides the students with the following competences:

1. Graduates are able to analyse technical research results and use relevant scientific and technical knowledge to carry out practical tasks and solve technical problems in an international organisation
2. Graduates are able to critically acquire new knowledge within relevant engineering fields and independently solve existing engineering-related tasks
3. Graduates are able to optimise or design the value chain for supplying the product/service to customers, thus, creating the best earnings and conditions for the company. Including allocation of the individual elements of the value chain to locations for a total optimisation of the flow of materials and information
4. Graduates are able to plan, implement and manage technical installations, taking into account societal, economic, environmental and workplace consequences in the solution of a technical problem
5. Graduates are able to manage projects in international companies at different organisational levels based on a holistic approach and strong economical insights.
6. Graduates are able to interact with the management and cooperate with people with various educational, linguistic and cultural backgrounds

The GMM study programme provides the students with knowledge, skills and competences which make the students able to work independently or in teams when solving technical problems as described in Executive Order 527 of 21 June 2002.

Executive Orders

These Academic Regulations are based on the below-mentioned executive orders. Since the executive orders of the engineering study programmes are updated regularly, it is the student's own responsibility to stay informed about future changes.

Executive Order no. 527 of 21 June 2002: Executive order on Bachelor of Engineering study programmes

Executive Order no. 1519 of 16 December 2013: Executive order on examination in business-oriented higher educational programmes. <https://www.retsinformation.dk/Forms/R0710.aspx?id=160839> (in Danish only)

Executive Order no. 223 of 11 March 2014: Executive order on Admission to and Enrolment on Academy Profession and Professional Bachelor's Degree Programmes <https://www.retsinformation.dk/Forms/R0710.aspx?id=162040> (in Danish only)

4. Admission requirements

The admission requirements for the GMM programme are stated in the executive order on admission requirements no. 223 dated 11 March 2014 <https://www.retsinformation.dk/Forms/R0710.aspx?id=162040> (in Danish only).

Admission to Bachelor of Engineering in Global Management and Manufacturing requires an upper secondary/high school qualifying exam and the following specific subject levels (Danish upper secondary school):

- Mathematics B
- Physics B
- English B

Admission for foreign applicants

Admission to Bachelor of Engineering in Global Management and Manufacturing requires an upper secondary/high school qualifying exam.

The levels of Mathematics, Physics and English are the same as for the Danish students (equivalent to maximum high school level).

- **English at B-level.** The language qualifications comparable to an 'English B' level in Denmark can be documented as follows:
 - TOEFL test results of at least 560 (paper-based) or 83 (internet-based test). The Aarhus University TOEFL code is 8935
 - IELTS test with a minimum score of 6.5 points
 - Cambridge ESOL examinations: Certificate in Advanced English (CAE)
 - "C1 level" obtained by examination from a CEFR validated English language course
 - English-taught entrance examination ("upper secondary school/high school") or Bachelor's degree

The test result must not be more than two years old.

This study programme qualifies the graduate to access: MSc in Engineering (Technology Based Business Development) at AU Herning and other Master of Science in Engineering programmes.

5. Deadlines

A student must meet the following deadlines to be able to continue his / her studies on GMM at AU Herning:

- a) The 1st year courses must be passed two years after admission
- b) The education must be completed no later than 5½ years after admission
- c) All previous courses must be completed satisfactorily i.e. "passed" or with a minimum mark of 02 according to the Danish 7-step grading scale, before a student can begin writing the bachelor project
- d) Aarhus BSS has laid down a set of rules stipulating that a student's enrolment will be terminated if the student does not comply with the faculty's rules for study inactivity.

You can find the rules on the study portal of your degree programme.

To qualify for the Danish government grant (SU), other rules apply, see <http://www.su.dk/English/Sider/default.aspx>

Maximum degree completion time

Students who commenced a degree programme before 1 September 2016 must complete their degree by no more than 12 months after the remaining prescribed time to degree as from September 2017.

The final deadline for completion of the degree will be available at the student self-service site (STADS).

6. Transitional provision

These academic regulations apply to students who are enrolled from 1st September 2014 or later.

Students who have not completed their study programme by 1 February 2017 may be transferred to the 2014 regulations on the basis of an individual evaluation.

7. Structure of the GMM study programme

The GMM engineering qualifications are built up in the courses during the education by working with elements from:

- Supply chain management
- Global and international qualifications
- Operations management
- Economy
- Basic engineering skills
- Personal and learning skills

The elements are linked together during the semesters through semester themes and the semester project and theoretical lectures.

Semester Themes

Semester	Semester Theme
7	Final Project
6	Internship – Engineering in practice
5	Globalising the supply chain/ International semester
4	Global sourcing
3	Global management
2	Manufacturing
1	Understanding business

Mentor programme:

The overall aim of the mentor programme is to apply the acquired knowledge during the semesters by:

- Comparing it to the practice in the business community
- By applying it in the company-related projects, internship and in the bachelor project

- By using the practical experience and dealing with real problems in the business community as case material during the semesters

The mentor period runs from the 3rd semester until the final project (the 7th semester). The mentor company can be changed during the programme either by request from the company or the student. If the students wish to change mentor company, study abroad for one or two semesters or do their internship abroad, they must hand in a written application to the Programme Coordinator, who will process the application.

For further information see the relevant course descriptions. There are two different ways of participating in the mentor programme:

- 1) Fixed mentor company during the programme

The student is semi-employed in the mentor company from the 3rd semester.

- 2) Different mentor companies during the mentor programme

It is the students' responsibility to find a mentor company – however, AU Herning can assist in finding a mentor company. During the education, the student will be presented with preparation materials on how to find a mentor company. If the student chooses to find a mentor company abroad, AU Herning cannot guarantee that supervisors can be on location in the company. Supervision will then take place in other ways.

Overall structure of the programme

1st semester	2nd semester	3rd semester	4th semester	5th semester	6th semester	7th semester
Understanding Business	Manufacturing	Global Management	Global Sourcing	Globalising the Supply Chain	Engineering in Practice	Specialisation
Mathematics 5 ECTS	Operations Management 10 ECTS	Quality Management 10 ECTS	Purchasing and Product Development 10 ECTS	Global Production 10 ECTS	Trainee in Mentor Company 30 ECTS	Theory of Scientific Method 5 ECTS
Statistics 5 ECTS						Elective 5 ECTS
Project Management 5 ECTS	Quantitative Research Methods 10 ECTS	International Managerial Economics (Accounting) 5 ECTS	International Managerial Economics (Financing and Investment) 5 ECTS	Elective 5 ECTS		Bachelor Project 20 ECTS
Drawing Understanding and Graphics Communication 5 ECTS		Organisational Behaviour 5 ECTS	Enabling Technologies 5 ECTS	Elective 5 ECTS		
Market Understanding and Product Development 5 ECTS	Company-Related Project 2 10 ECTS	Company-Related Project 3 Incl. Workshop course 10 ECTS	Company-Related Project 4 10 ECTS	Company-Related Project 5 10 ECTS		
Company-Related Project 1 Incl. Workshop course 5 ECTS						

The Global Management and Manufacturing programme is assessed at 210 ECTS points which is equivalent to 3½ years of full-time study.

To pass the programme of Global Management and Manufacturing, the students must acquire a total of 210 ECTS.

Mandatory courses:

Basic engineering subjects constitute 35 ECTS, Management and Manufacturing subjects 50 ECTS, Projects including the bachelor project 80 ECTS. See below.

For more information about each course's content (objective, examinations, etc.) see AU's Course Catalogue kursuskatalog.au.dk/en.

Electives:

There are different elective courses each semester. Students must have completed 15 ECTS of electives to graduate.

Projects (courses without instruction) are offered at specific semesters (see study diagram). However, students with an individual course of study will be able to sign up for these exams in other semesters, if a plan for the course of study has been approved by the head of studies. Please be aware that your individual course plan must be approved in writing.

For more information about each course's content (objective, examinations, etc.) see kursuskatalog.au.dk/en.

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.

On the 6th semester, the students do an internship in a company relevant for the student. AU Herring, the company and the student make an agreement that includes a plan for the internship. The internship is worth 30 ECTS.

After the internship period is completed, the student writes a report, etc. as described in the course description for the internship.

If the student is working on his/her own business idea, the internship can be within his/her own company. The student must apply in writing and include the business plan of the company to the programme coordinator in order to have his/her company as the place for the internship approved.

During the semester, focus will be on the practical use of the competencies acquired in the programme so far, an expansion of the student's understanding of business and ability to link theory, practice and experience.

It is part of the study programme to expand the student's understanding of business, develop the student's creativity, independence and inter- personal skills as well as developing the student's competencies within the following areas:

- The student is trained in communication with companies. The student can use this competence when looking for a company for the final project and in future job search and career development.
- The student develops his/her competencies by participating in the daily running of a business and projects and develops his/her skills in the practical use of known theory.
- The student acquires valuable knowledge about interaction between employees in an organisation.
- Experience with transforming the core theories of the study programme into practical, feasible projects.
- Experience with acquiring knowledge during the completion of projects.
- Understanding the organisational, 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 routines and regulations.
- Experience with presenting results, orally and in writing, to groups of recipients with different occupation, education and background.

Structure of the programme incl. examinations forms:

Semester	Course	ECTS	Marking	Examiner	Type of examination
1st	Mathematics	5	7-step scale	Internal	Written examination
	Statistics	5	Passed/not passed	Internal	Written examination
	Project Management	5	7-step scale	External	Written examination
	Drawing Understanding and Graphics Communication	5	Passed/not passed	Internal	Written examination
	Market Understanding and Product Development	5	7-step scale	Internal	Group project + oral examination
	Company-Related Project 1	5	7-step scale	External	Report + oral examination
2nd	Operations Management	10	7-step scale	Internal	Oral examination
	Quantitative Research Methods	10	7-step scale	Internal	Group project + oral examination
	Company-Related Project 2	10	7-step scale	External	Report + oral examination
3rd	Organisational Behaviour	5	7-step scale	Internal	Oral examination
	International Managerial Economics (accounting)	5	7-step scale	Internal	Group project + oral examination
	Quality Management	10	7-step scale	Internal	Written examination
	Company-Related Project 3	10	7-step scale	External	Report + oral examination
4th	Purchasing and Product Development	10	7-step scale	Internal	Oral examination

	International Managerial Economics (Financing and Investment)	5	7-step scale	Internal	Group project + oral examination
	Enabling Technologies	5	7-step scale	Internal	Written examination
	Company-Related Project 4	10	7-step scale	External	Report + oral examination
5th	Global Production	10	7-step scale	Internal + external	Written assignment + oral examination
	Elective	5			
	Elective	5			
	Company-Related Project 5	10	7-step scale	External	Report + oral examination
6th	Trainee in mentor company	30	Passed/not passed	Internal	Report
7th	Theory of Scientific Method	5	7-step scale	Internal	Written examination
	Elective	5			
	Bachelor Project	20	7-step scale	External	Report + optional oral presentation

Mandatory subjects:

Courses and modules are described in detail in the course descriptions. These course descriptions are approved and updated by the Board of Studies/Programme Coordinator.

The learning objectives for each course are described in the course descriptions.

All lectures and all reading material used in the Global Management and Manufacturing Programme is in English.

1st and 2nd semester of the programme in Global Management and Manufacturing place a strong emphasis on giving the students a wide and basic knowledge within the following areas:

- Statistics
- Mathematics
- Drawing understanding and graphics communication
- Market and business understanding
- Operations management
- Real-life project

3rd, 4th and 5th semester focus on Global Management and Manufacturing by means of interdisciplinary projects within a mentor company and on relevant management-and-manufacturing-related subjects such as:

- Quality management
- International managerial economics
- Strategic sourcing
- Organisational behaviour
- Global production
- Company-related projects

The third semester project Company Project 3 focuses on problems within the area of global management. As a result of the involvement from a mentor company, the third semester project deals with actual problem areas.

The fourth semester project Company Project 4 focuses on problems within the area of purchasing and business relations. Again, the project is defined together with the mentor company and, hence, deals with real problems.

The fifth semester places a strong emphasis on giving the students a wide and basic knowledge within the area of sourcing and supply chain management, combined with an in-depth understanding of strategy and strategy development. The fifth semester project Company Project 5 focuses on subjects related to logistics, buying or supply chain management, possibly combined with strategy considerations.

The sixth Semester is Internship – which is described above.

8. Bachelor project

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 his or her skills in finding an independent, experimental solution to a practical problem associated with the central subjects of the programme.

The bachelor project is a written report with an oral examination. The evaluation includes both the written product and the oral defence of the paper.

By working on a larger project with the support of a faculty supervisor and a supervisor from the company, the student has the opportunity to acquire knowledge and experience with professional problem-solving.

By working on the final project, the student expands his knowledge on the principles and theories of the engineering profession and strengthens his or her skills in professional and creative problem-solving in relation to complex engineering problems. When writing the project, the student's competencies in managing a complex, professional project is improved including the ability:

- to organise the analytical process in relation to a complex problem
- to assess and prioritise a set of problem-solving strategies
- to evaluate the economic consequences when selecting a solution
- to formulate and define a problem
- to create a time plan and plan resources
- to link theory and practice when solving a specific problem
- to communicate the knowledge and results achieved
- to be critical and reflective regarding the work process as well as the solution

Workshop periods

The workshop periods' aim is to create an understanding of the manufacturing process as well as workshop technology. The workshop internship takes place during the following periods;

- 1) Workshop Course 1: 1 week where the student does practical work in the lab. It is included in the course at 1st semester.
- 2) Workshop Course 2: 2 weeks where the students work in a mentor company before 3rd semester

Workshop courses are part of the study programme's mandatory subjects.

9. Rules and regulations for the academic progression

Credit transfer

Aarhus University has many exchange agreements which makes it possible for students to complete part of their education at universities in other countries. If the student wishes to make use of this possibility, a period of study can be arranged in a degree programme that resembles the Danish Global Management and Manufacturing programme in terms of content and structure. The transfer of merit for courses completed at international educational institutions is handled by the Board of Studies, Aarhus School of Engineering (Science and Technology).

It is recommended to place a semester abroad on the 5th semester. The courses taken abroad must equal the content of the courses on GMM at AU Herning.

In relation to exchange students, it is a prerequisite that the majority of the previous ECTS credits in the study programme have been passed.

Evaluation

The student's qualifications are documented through examinations and evaluation of projects. The different examination forms during the study programme consists of: individual oral or written examinations, project examinations incl. individual presentations e.g. the examination forms of the different examinations are chosen in order to best meet the purpose of the courses, the placing of the exam in relation to the progression in the studies and to allow students to try different examination forms to optimise their learning during the course of study.

The department may decide to convert written exams into oral exams, if no more than 10 students have registered for the re-examination by the deadline for registration. If a written exam is converted into an oral exam, no supplementary materials are permitted at the exam, unless otherwise stated, nor will the student be allowed preparation time. The decision to convert a written exam into an oral exam will be announced immediately after the deadline for registration.

Individual exams/group exams

Oral and written exams may be either individual exams or group exams. It is stated in the exam description whether an examination should be taken individually or in groups. In both individual and group exams, the student's performance must be subject to an individual assessment.

Individualisation of the students' contributions (text elements) in written group assignments/projects

It must clearly appear from written group assignments/projects which student has composed and has special responsibility for a larger subchapter within the Theory, Methods, Analysis and Discussion chapters respectively.

For written assignments with **no oral defence** and **no supervision**, individualisation of the students' contributions

must be done by stating the student registration number in the table of contents next to the section the given student has contributed to. This serves to ensure the student-s anonymity.

For written assignments **with oral defence** and/or **with supervision**, individualisation of the students- contributions must be done by stating the student-s name in the table of contents next to the section he/she has contributed to.

The assignment/project introduction, problem statement, delimitation as well as conclusion and further perspectives are considered joint work by the members of the group and are therefore not subject to individualisation. Each student must contribute with an approximately equal share of pages to the total number of pages in the final report.

An exam paper that does not meet the formal requirements for individualisation cannot be accepted for assessment and will be rejected.

At the oral defence, all members of the group are expected to have an insight into all chapters of the project/thesis, i.e. both the individualised parts as well as the chapters prepared in collaboration among the members of the group. The person responsible for a chapter or subchapter is expected to have detailed insight into this chapter and must be able to account for the content in detail. The grade is awarded individually on the basis of the above.

Written examinations, oral examinations, practical examinations and projects are evaluated according to the 7-step scale (Executive order no. 250 of 15/03/2007 - <https://www.retsinformation.dk/Forms/R0710.aspx?id=29307> (in Danish only)) or they are evaluated passed / not passed.

Internal examinations are evaluated by internal examiners. The individual course description states whether there is internal examiner or external examiner.

Project work and the bachelor project are documented by a report and an oral presentation.

When the students register for a course, they automatically register for the exam as well – cancellation of the registration has to be no later than one week before the exam is scheduled (Executive order no. 1519 of 16 December 2013).

The bachelor project and the oral exam will be evaluated according to the 7-step scale and should reflect the purpose of the study programme of the Executive Order no. 527 of 21/06/2002 on engineering programmes.

In addition to the teacher(s) /project supervisor(s) concerned, one external examiner from the body of external co-examiners appointed by the Danish Ministry of Education will participate in the evaluation of extensive and important interdisciplinary projects and the bachelor project.

The Board of Studies may under exceptional circumstances exempt from external censorship in connection with interdisciplinary projects or with re-examinations.

Deadline for handing in projects/submission is always at 12.00 on the announced submission date. If the projects are handed in later than that time, it will not be accepted.

For rules regarding the requirement that students must earn 45 ECTS credits per academic year see <http://www.au.dk/en/about/organisation/index/4/41/>.

Spelling and formulating capacity

The student's ability to spell correctly and formulate sentences in a readable way will be included in the evaluation of all written examinations. The evaluation attaches highest importance to the academic content, while spelling and formulating capacity form a modifying evaluation of the overall goal achievement of the course.

The student's ability to present the case in well-phrased sentences will be included in the evaluation of all oral examinations. The academic content will have highest importance, while the oral presentation will have a modifying function in the overall evaluation.

Exemption

All matters concerning exemption must be addressed to the Board of Studies, Aarhus School of Engineering (Science and Technology). The Board of Studies can after receiving a written application – and when it is based on exceptional circumstances, make an exemption from the rules stated in the overall regulations including laws, decrees, executive orders, etc. (Executive order no. 1519 of 16 December).

Complaints and appeals

Complaints must be addressed to the Board of Studies, Aarhus School of Engineering (Science and Technology at Aarhus University). For the Board of Studies to deal with the complaint, it is required that the complaint is written and substantiated. It has to state clearly what the complainant wants to complain about and what the complainant wants to achieve with this complaint.

Complaints about an examination must be handed in within 14 days after the publication of the exam result (Executive order no. 1519 of 16 December).

10. General information about tests

Mandatory assignments:

In different courses, one or more mandatory assignments must be approved before the student can register for the exam. The number and extent of the assignments will appear from the course description. The necessary number of approved assignments must be achieved in the same course period as the student wants to register for the exam.

Exam requirements

The bachelor degree of GMM is obtained when the student in each course has achieved the grade 02 or more or the student has received "passed". If the student has taken courses elsewhere than on GMM, the courses must be passed. Only courses that have been passed can be credit transferred.

The specific exam requirements are described in the course descriptions for each course.

The exam and re-exam is arranged by the study secretary and placed according to the relevant deadline.

The ordinary exams for courses taken in the autumn semester are in December / January with re-examination in February, while the ordinary exams for courses taken in the spring semester will be in May / June with re-examination in August.

Students, who do not pass an ordinary exam, either by not cancelling the exam in time, by not obtaining the grade 02 or is ill on the exam date, will have to register for the re-exam. For further information on re-exams, see the course descriptions.

Changes to the curriculum:

The curriculum for Global Management and Manufacturing 2014 has been adjusted 22 August 2017:

- Rules regarding conversion of exam forms, placement of exams, individualisation in group assignments and study inactivity have been added.

The curriculum for Global Management and Manufacturing 2014 has been adjusted 22 August 2017:

- Due to the study progress reform II rules regarding maximum degree completion time and earning of 45 ECTS credits per academic year have been added.