Programme-Specific Annex to the EER 2018-2019

For the Bachelor of Science programme

Industrial Engineering and Management Science (B-IEM)

1 Structure and content of the programme

The Bachelor's programme in 'Industrial Engineering and Management Science' (CROHO number 56994) uses the programme name 'BSc Industrial Engineering and Management' (B-IEM) in its communication. B-IEM consists of three academic years (B1, B2 and B3) of 60 ECs each. The academic timetable for the Bachelor's programme consists of two semesters per academic year, each semester consisting of two quartiles of ten weeks each. A quartile consists of one unit of study, a 'module' of 15 EC (420 hours).

The programme consists of 12 modules of which 10 modules are the core of the programme. The two first modules (semester 5) of the third year are electives for broadening or deepening knowledge, skills and attitude or study abroad. The two last modules of the programme (semester 6) is the preparation and the execution of the bachelor's thesis assignment in which the student shows to master all programme intended learning outcomes.

Each module is composed of different components which are logically clustered around a particular topic in such a way that the offered knowledge, skills and attitude of different scientific disciplines and approaches are applied in cases, assignments and/or the project. Students work in groups on project-oriented assignments and gain new knowledge rather independently (under the support and supervision of tutors). Such a teaching approach requires a variety of assessment methods – individual and group assignments, individual written tests, group papers and presentations, etc. - which are applied at different phases in each module. More detailed information on the exam formats can be found in the module descriptions, including the test plan, in the Student Information System - Osiris and at the Canvas site.

1.1 Programme

The global overview of the B-IEM programme is given in Table 1.

Study Programme BSc 'Industrial Engineering and Management' (B-IEM) 2018 - 2019

B-IEM	Quar tile	Module code	Module Name	EC	Way of testing	Mandatory prior knowledge	Necessary knowledge	Organising programme
year 1	1	201300023	Module 1: Introduction to IEM	15	PSS			B-IEM
	2	201300024	Module 2: Operations Management	15	PSS			B-IEM
	3	201300108	Module 3: Business Intelligence and IT	15	PSS			B-IEM
	4	201300109	Module 4: Supply Chain Management	15	PSS		M2	B-IEM
year 2	1	201400056	Module 5: Finance for Engineers IEM	15	PSS	75% of B1		B-IEM
	2	201400265	Module 6: Consumer Products	15	PSS			B-IDE
	3	201400060	Module 7: From Product Design to Online Business	15	PSS			B-IEM
	4	201400062	Module 8: Modeling and Analysis of Stochastic Processes for IEM	15	PSS		M2 + M4	B-IEM
year 3	1		Module 9: Elective	15		75 EC		
	2		Module 10: Elective	15				
	3	201500021	Module 11: Preparation Thesis	15	PSS			B-IEM
	4	201500022	Module 12: Thesis	15	PSS	150 EC incl M11		B-IEM
				180				

Table 1: Study programme BSc Industrial Engineering and Management

The above scheme shows:
- The module sequence per year and the quartile in which the module is offered
- The module code and module name (registered in the Student Information System - SIS)
- Mandatory prior knowledge: Knowledge to be allowed to start the next module of the study
- Necessary knowledge: prior knowledge necessary to be able to finish the module

Content of practical exercises

A practical exercise is a unit of study or a part of a unit of study, in which the emphasis is placed on the student's activities. In the Twente Educational Model (TEM) on which the B-IEM curriculum is based, practical exercises and relations with the work field play an important role, especially in the form of a project (or sometimes several small projects) which is at the heart of each module. The structure of the practical exercise(s) is described on Canvas.

1.2   Study Load

The programme has a study load of 180 EC. This means three years study and a total amount of 5040 hours of study. Each EC represents 28 hours of study.

1.3   Specific characteristics

B-IEM is a fulltime programme. The programme consist of:
-    A major: 10 core modules
-    A minor: two elective modules, scheduled in the first semester of the third year. The minor can be taken at the University of Twente, other universities in the Netherlands, or abroad, see, https://www.utwente.nl/en/education/electives/minor/ .

1.4   Honours programmes

Students obtaining excellent results will be invited for participation in the University-excellence honours programmes for broadening their knowledge. These programmes offer additional education to the programme. Participation means extra study load. Finalizing the excellence programme will be noted on the diploma supplement. Recommendation for participation is mandated to the study counselor. For extra information, see https://www.utwente.nl/en/excellence/.

2   Aim and final attainment targets

As envisioned in UT's 'High Tech Human Touch' vision, B-IEM particularly focuses on organizational problems in contexts with high societal relevance. B-IEM students can analyse the root causes, can design solutions, can prospectively assess solutions in a (optimization/simulation/analytical) model, and can implement the outcomes in situations where typically they need to work together with people from various other disciplines. B-IEM graduates specifically are able to support scientific decision making, by choosing a method that fits the problem, which means that they combine quantitative and problem-solving approaches of engineers with research methods and qualitative insights from the social sciences. The domain of IEM is dynamic. Demands posed on graduates shift towards e.g. stronger skills and multidisciplinary competences. This shift is driven by developments of e.g. globalization of supply chains, risk management and financial valuing, and the search for higher efficiency and effectiveness in the healthcare sector.

The aim is to enhance the student experience, improve study success, and grow an entrepreneurial student attitude. The *first year* has been designed to provide a realistic experience of B-IEM, to give each student insight in his/her suitability (*level*, *effort*, and *orientation*). Students get acquainted with all B-IEM domains. The focus is on developing students' maturity through development of meta-cognitive competences such as planning, researching literature, and reflection. Our project-based learning approach challenges students to solve a real-life HTHT case (project) in each of the four *second year* multidisciplinary teaching units (15 EC). The integration of all education in these modules provides a context in which knowledge, skills and attitude will sink in better. Indeed, students have to acquire these competences and immediately apply them to be able to complete their projects. Since various modules are shared between programmes, students have to work in multidisciplinary teams and on external projects. In case of shared modules, rules and regulations of the organising programme apply (see table 1). The *third year* gives room for a student's personal ambition and personal choices. Students can broaden or deepen their personal interest by choosing an UT minor. Students can also choose courses outside UT, from (inter)national technical programmes to be approved by the programme management.

The programme leads to a T-shaped profile of BSc graduates with high level academic and professional skills. In support of the horizontal bar of the 'T', throughout the BSc programme, all UT students have 10 EC of reflection on science and corporate and social responsibility. Also, all engineering programmes share the mathematics learning line.

2.1   Intended learning outcomes (ILOs)

The ILOs (or the so called Final Qualifications) of the B-IEM programme correspond to the requirements formulated by colleagues in the Netherlands and abroad, and by professional practice. We distinguish two groups of competences: domain-specific and general competences, with a specific operationalization on general competences: reflection, working in (multidisciplinary) teams and preparation of student's lifelong learning, ethics, philosophy of science and Corporate Social Responsibility. Table 2 outlines the ILOs.

Table 2: Intended Learning Outcomes

	BSc Industrial Engineering and Management: Final Qualifications
	Generally:
	The graduates of the BSc programme are able to analyze problems and define required improvements for the design and control of operational processes (the IEM domain) at an academic level. Moreover, they are able to implement such improvements. The difference between BSc and MSc is, that BSc graduates are able to perform these activities in relatively simple cases.
	This involves defining problems and research questions; describing intended results, scope of research and design efforts, available resources; determining the constraints for feasible solutions, from different perspectives (such as: organizational, legal, financial, ethical, professional norms) and for different stakeholders (such as: employees, shareholders, suppliers, local community, regulators); defining criteria for evaluating alternative solutions.
	A. Professional academic qualifications
	The graduate is able to identify, comprehend, assess, correctly apply, and integrate existing scientific knowledge that can be used for analyzing problems and designing solutions, in the domains of: > production and logistics; > information systems; > finance and accounting; > other fields in business administration (law; marketing; human resources); > mathematics, statistics, empirical research methods.
A1	Has a global overview of the structure of research and design processes and is able to > identify the various steps in performed research and design > properly break up own research and design activities into subprocesses *These processes are intertwined: Research is needed for producing knowledge that is used for designing solutions in a specific context. Such knowledge is produced in a purposeful and methodical way (using scientific research methods). It may or may not be generalizable knowledge*
A2	Has an overview of quantitative and qualitative empirical research methods and is able to > analyze performed research as to the methodological aspects > select an appropriate method and explain this choice for research to be performed > apply this method in relatively simple cases
A3	Has an overview of quantitative modeling techniques for operational processes, specifically in the domains of > Operations research models > Information systems models > Finance and accounting models and is able to > analyze the results of modeling activities > select an appropriate modeling technique and explain this choice > apply this technique in relatively simple cases.
A4	Is able to integrate existing knowledge, modeling techniques, and research results for designing, validating, and selecting solutions in relatively simple cases This is challenging, because existing knowledge may not fully apply to a specific situation, models are always stylized, empirical research always has limitations, and some aspects have been left out of scope from the beginning anyway
A5	Has an overview of implementation methods and processes and is able to > (critically) analyze ongoing or finished implementation processes > plan globally an implementation process in a relatively simple case
A6	Has an overview of evaluation methods and techniques and is able to > analyze the results of performed evaluations > select appropriate evaluation methods and explain this choice > carry out an evaluation in relatively simple cases
A7	In order to be able to meet these competencies, the graduate must have mastered the following disciplines: > mathematics and statistics - [2] (see Legend) > finance and accounting - [2] (see Legend) > production and logistics - [2] (see Legend) > information systems - [2] (see Legend) > law, organization theory, marketing - [1] (see Legend)
	B. General academic qualifications
B1	Is able to work autonomously and self-reliant
B2	Is able to work in multidisciplinary teams.
B3	Is able to communicate properly (in oral and written form) with various stakeholders
B4	Is able to conduct a bibliographic search and knows how to reference correctly
B5	Is able to reflect on professional behaviour and ethical and societal aspects of work
B6	Is able to reflect on and direct personal and professional development
B7	Is able to manage and concretize effectively his own learning process in the context of a MSc programme.
B8	Has enough basic knowledge and competencies to follow a broad range of MSc programmes which are adjacent to the IEM domain.

Level	Legend
[1]	Knowledge of the basic concepts and principles
[2]	Application in relatively simple and monodisciplinary cases
[3]	Application in relatively simple interdisciplinary cases

2.2   Connecting master

Successfully completing the BSc B-IEM programme automatically qualifies a student for immediate admission to the MSc programme Industrial Engineering and Management.

3   Examination and exams

3.1   Examination

The B-IEM Bachelor's programme exam is successfully completed if all the exams of the units of study (modules), including the minor, have been taken successfully.

3.2   Exam formats and the number and sequence of exams

The exam format of (module) exams consists of a mixture of assessment methods. These may include individual and group assessment (various forms) of practical exercises, written test and reports, different forms of presentations (poster, verbal, paper). For each module the intended learning outcomes and a generic test plan are given below[1].

As mentioned before each module is composed of different components which are logically clustered around a particular topic in such a way that the offered knowledge, skills and attitude of different scientific disciplines and approaches are applied in the project. **Each module is graded with one integrated exam grade.**
The exam grade consists of grades of module components (see Section 8 of this appendix).
- The module test grade is registered if all module components are successfully finished
- Participating in practical exercises is mandatory

3.3   Validity of test results

Only the following grades remain valid:
1.   The grades of successfully completed modules
2.   In Modules 1,2,4 and 7:
      o   The grades of the 'Mathematics' components
      o   The grades of all other module components, if they are all successfully completed according to the assessment schedule.

Under specific circumstances, the B-IEM programme offers an additional extension of the validity of test results with one year. See section 6.1.2.

3.4   Determination of the exam grade

- The exam grade is determined based on the module test plan, defined by the module coordinator. The exam grade is at least 5.5 to finish the module successfully. In SIS the module grade is rounded towards the nearest integer
- The project grade is at least 5.5. The grades of module components are at least 5.5 of Pass, unless described otherwise in the test plan
- The module coordinator determines in the test scheme if and what compensation regulation is applied in the module
- If a module component grade is equal to NVD (not completed successfully), the module is not successfully completed.

3.5   Bachelor thesis (assignment)

During the thesis graduation project students have to work individually and independently on a chosen subject of professional relevance in a company or institution in the Netherlands or abroad. *The individual graduation project* is an external research assignment, in which students have to show that they meet the programme intended learning outcomes. The graduation project involves the assessment of the total research process and of two

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[1] *Be aware that small changes to module test plans will be published on Canvas.*

deliverables, the Bachelor's graduation report and the presentation/defence of the research outcomes. The student is academically supervised by two examiners; an additional external supervisor from the hosting company/organisation takes care of daily supervision. The lead UT examiner is an expert on the assignment subject. The lead UT examiner monitors the progress of the project and grades the work, together with the second UT examiner. Only appointed UT-B-IEM examiners are authorized to grade the project; however, external supervisors are consulted as well. The final grade is based on the criteria of a detailed Bachelor Project Assessment form.

The bachelor thesis assignment has to be finished within the nominal study time (10 weeks). Reasons for delay can be:
- Insufficient level of and/or progress by the student
- Insufficient (level of) supervision in the specific research topic
- Special circumstances

Extra graduation project time can only be authorized by the programme director with a maximum of 50% (5 weeks). The programme director may consult the supervisors and/or study counselor.

If the assignment is not finished within the time set and on a sufficient level then the assignment may be graded as insufficient. The student then has to do a new assignment. The student can ask for appeal at the Examination Board against the decision of the programme director. Extra information regarding the Bachelor graduation project can be found on the Canvas site.

3.6 Prior Knowledge
The formal sequence of the modules and their exams is the order as recorded in Table 1. Departing from the order of modules needs approval from the study counselor on behalf of the programme director.

4 General Information

4.1 Admission to the programme
In addition to the stipulations in Article 4 of the Common Elements of this EER and the admission regulations laid down in the 'Colloquium Doctum', there are no extra statutory requirements.

4.2 Language of teaching and exams
The B-IEM programme is taught in English. All course materials (textbooks, readers, etc.) will be in English as well as the tests, exams and practical exercises.

4.3 International cooperation
The B-IEM programme and its staff cooperate internationally with a large number of institutes and companies. Students are stimulated to benefit from these cooperation's for their international experience.
The options for an international experience are:
- Study abroad: In the first semester of the third year students can choose for a semester (30 EC) study abroad (exchange) at partner universities. Arrangements for study abroad at non-partner universities are subject to special procedures and requirements as specified on the UT study abroad website, www.utwente.nl/en/study-abroad. Detailed information on Faculty level can be found on the website Study Abroad and the BMS Canvas Study Abroad page.
- The minor 'crossing boarders' gives students the opportunity to go abroad for a field study or a study tour. For more information we refer to the website www.utwente.nl/minor
- Executing a bachelor thesis project abroad. Students can organize a thesis project on their own initiative. The thesis project needs approval from the supervisor before the start of the project execution.

4.4 Electives and extra options
During the third year students have the following choices:

- Students can choose to do two 15 EC minor modules at the UT. Offered are: High Tech Human Touch minors, Crossing Border minor, join-in minors, in-depth minors and study abroad (exchange: courses to be approved by the programme director with mandate of the Examination Board). Minors may have admission requirements. For more information see the website www.utwente.nl/minor and the minor matrix.
- An additional choice is participation at the excellence programme at University level (https://www.utwente.nl/en/excellence/), see Canvas 'B-IEM Programme Information'.
- Students can choose the subject of their Bachelor thesis project and the country in which they would like to execute their research.

Students can participate in UT minors without approval of the Examination Board or the programme director. The exchange programme for study abroad needs approval of the programme director, on behalf of the Examination Board.

4.5   Programme committee

For the BSc and MSc programme Industrial Engineering and Management a programme committee (OLC) is appointed by the Faculty Board. The committee is the advisory board for the programme director.
The OLC consists of students and lectures from the programmes on an equal basis. The members of the committee can be found on the website, https://www.utwente.nl/en/iem/organization-and-contact/#staff-committees
Tasks of the OLC are:
- Advising (the programme director) on stimulating and ensuring the quality of the degree programme"(WHW art 9.18)
- Advising on teaching and examination regulations (EER)
- Assessing the manner in which the EER is carried out
- Advising (invited or not invited) on teaching and education issues related to both BSc and MSc programme

For detailed information we refer to Art. 9.18 of the Higher Education and Research Act.

4.6   Examination Board (EB)

The EB Management Science is the body that determines in an objective and expert manner whether a student meets the conditions set under the EER concerning the knowledge, comprehension and skills required to obtain a degree. The EB's main tasks are described in the common elements of this EER.
The members of the EB, appointed by the Dean, can be found on the website: https://www.utwente.nl/en/bms/examboard/. Correspondence with the EB is possible via: examencommissiebms@utwente.nl.

4.7   Description of the B-IEM assessment system

The faculty BMS adopted the BMS assessment policy plan in the spring of 2016. Currently, B-IEM is aligned with the policy plan and working with closed PDCA cycles. A key instrument is the programme test plan (available on request).

4.7.1   Examination Board

The BMS faculty has four EBs. One of these cover our BSc and MSc Programmes and those of the programme International Business Administration. The EB has one UT-external member. Programme management and EB have a mutually proactive understanding. Areas of attention are: 1) Intended learning Outcome (ILO) structure on Programme and module level; 2) assessment of BSc theses; 3) testing schemes (including the relationships with FQs); 4) quality of tests at the module level; 5) the assessment qualifications of examiners; 6) oversight of organizational aspects of testing and assessment. All of the EB's duties are in line with Dutch WHW legislation. Annually, the EB and the Programme management discuss progress. The EB hands in an annual report of the findings to the Dean.

4.7.2   Description of the programme's assessment system

The programme director is responsible for the design of the programme and for the process of testing and assessment. A programme test plan and a test framework are the basis for quality assurance of assessment. Actions for improvements and results are recorded in an annual Programme Improvement Plan. These documents are discussed with the programme committee, the lecturers and the EB. The programme assurance instrument for

testing and assessment has five levels: 1) The programme, 2) the module, 3) a test, 4) final assignments and 5) examiners. We will cover these below.

4.7.3   Assessment quality assurance at the programme level

At the Programme level, a comprehensive test plan gives an overview of what, how and when Programme goals are tested, to ensure that each individual student achieves the required Intended Learning Outcomes (Final Qualifications (FQ)).

4.7.4   Assessment quality assurance at the level of a module

Our 15 EC modules contain several tests. Each module is completed with a formal assessment, i.e. an assessment for a grade. A variety of both summative and formative testing and assessment methods is used, to cover the variety of learning goals and to support students' learning. The module test plan also includes the learning objectives at the level of a module, a test schedule and the proportion of individual and group assignments per module, to ensure that these are good 'building blocks' for the design of the tests and that they are doable for students. The test plan is updated yearly and discussed with the Examination Board.

4.7.5   The tests

SIS and Canvas provide information to students about all aspects of the modules intended learning objectives, the test plan, module grading etc. concerning the module. Lecturers provide representative practice assignments and feedback, and/or trial tests. As for project work it is clearly stated how the mark is determined. The assessment in the project subjects may be composed of various components, such as a presentation, oral examination, a final report and of course the process. Students can re-sit tests once within a module. For a second resit, students must submit a motivated request to the EB. Some modules have limited compensation possibilities.

4.7.6   Quality assurance of a test

- *Organization and responsibility:* The module coordinator, also being the coordinating examiner, bears the responsibility for the design, planning, realization, evaluation and improvement of the module, in cooperation with the module examiners. A student passes the 'module' examination when all 'interim' examinations (*tests*) for his/her module have been completed.
- *Questionnaires:* BMS' education quality department annually evaluates each module through standard questionnaires.
- *Panel meetings:* Each quartile students are invited to participate in a panel meeting (week 4/5 of the module) for an interim evaluation, possibly leading to improve ongoing education.
- *Students:* Due to the informal culture and communication, students feel free to discuss complaints and/or improvement to courses, test and assessment with lecturers and management directly.
- *Study Association:* Stress organizes meetings for the students for discussing the quality of education, including testing. Feedback is given to the programme management, who discuss possible issues with the lecturer.
- *UT complaints desk:* If reporting complaints does not lead to any acceptable change or adaption, students can report the complaint to the UT complaints desks (part of the UT student counselling service). The complaint will be dealt with by the Board of Appeal for Examinations, the Arbitration Committee or the Complaints Committee.
- *Lecturer meetings* to discuss (skills) assignments and test results.
- *Test screening:* for the quality assurance of tests, an independent process of test screening was started in 2014 at the request of the programme director. Each academic year one module, including all of its individual tests, is screened by independent educationalists (CES-CELT). The screening results and suggestions for improvement are discussed with the examiner(s), educationalists and the Programme management. The examiner addresses actions from the screening report. Aggregate reporting is provided to the Examination Board. The following year the follow-up of the actions is monitored by the programme management and the module coordinator through questionnaires and test analyses by the examiners.
- *The individual graduation project:* an external research assignment involves the assessment of the process and of two deliverables, the Bachelor's graduation report and the defence of the research outcomes. Only examiners (appointed by the Examination Board) are authorized to grade the project. See for detailed information section 3.4.

4.7.7   Improvement or modification of a test

The module coordinator and module examiners evaluate and analyse the subject test results and consider adjustments for the coming year. Small adjustments are noted by the examiner while major adjustments are submitted to the EB and posted in a course improvement plan.

4.7.8   Assessment of qualifications of lecturers/examiners

To assure and enhance the examiners' testing quality, examiners are specifically trained in educational testing and analysis of results (e.g. UTQ). Yearly an examiners overview per module is offered to the EB for screening and approval. All examiners are competent. The test screening is expected to provide further inputs for enhancements.

4.7.9   Fraud/Plagiarism

The Education and Examination Regulation (EER) includes handling of cases of alleged fraud, which is also covered in the Rules and Guidelines (*Regels en Richtlijnen*) of the Examination Board. At the programme level, students are instructed about fraud and plagiarism in several ways. For written exams, B-IEM works with external observers and examiners. For written assignment work, B-IEM lecturer can use a digital fraud scanner.

Though formally re-using one's own work is not considered fraud, submitting work from earlier years is not allowed in the B-IEM programme.

4.7.10   Organizational aspects of testing and assessment

EB and education management make formal arrangements. The Centre Educational Support (CES) organizes the timetabled assessments ('interim' examinations and presentation sessions). Where a course is to be completed with a written 'interim' examination, there are annually two opportunities to take this examination. Marking (checking) times and inspection rights are prescribed in the Education and Examination Regulation (EER).

5   Transitional arrangement

For the B-IEMs programme no transitional arrangement is in effect:

6   (Binding) recommendations on the continuation of studies (Binding Study Advise)

As formulated in the Common EER, Article 6.3, students get a (binding) recommendation regarding their study progress during the first year and on the continuation of studies at the end of the first year.
This recommendation is based on the number of successfully finished modules and ECs together with the advice of the study counselor to the programme director. **A negative recommendation at the end of the first year is binding**. A student who receives a negative (binding) recommendation cannot enroll in this B-IEM programme for the next three years. A positive recommendation at the end of the first year is given if the student meets the criteria below.

A positive recommendation on the continuation of studies for the B-IEM programme can be attained in two ways. The student:

1. Has successfully finished 75% of the first year study load, as defined in the common EER Article 6.3, paragraph 7. *'Results of exams and of tests that remain valid beyond the current academic year are counted to establish how much a student has completed'.*

2. The student meets all of the following criteria:
    A. At least 75% of the total study load has been finished successfully (based on the weight of the tests graded with at least a 5.5 and all tests from successfully finished modules).
    B. Two modules have been completed successfully
    C. For each module the project has been completed successfully
    D. Of the two not successfully finished modules, at least for one module the student only failed one individual test[2]

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[2] Note: the skills tests also count as an individual test.

E. At least six out of the eight below mentioned tests have been passed (passing a test means that its result is at least 5.5 or the test is part of a successfully finished module):
    i. Three Mathematic tests (M1, M2, M4)
    ii. Three Statistics and Probability tests (M1, M3, M4)
    iii. One Operations Research test (M2)
    iv. One Demand/Supply Planning, Inventory test (M4)

Obtaining a positive BSA through item 2 does not imply that the results of the module components of the not finished modules are declared indefinitely valid. In some cases, however, the validity of module components may be extended. See Section 6.1 of this Annex. The programme director has to approve the positive recommendations on the continuation of studies.

If a student de-enrolls before February 1st, the student is not allowed to enroll into B-IEM modules until the next academic year.

6.1   Additional programme regulation: Extension of validity of test results with one year

Starting point of the rule to extend the validity of test results with one year is that students should preferably finish 60EC each year, or at least 45EC each year, so they will graduate within four years. Student's study progress will be checked each year in August. To prevent inequitable study delay the B-IEM programme applies the rules in Sections 6.1.1 to 6.1.3 as agreed on with the Examination Board in 2014.

6.1.1   EXTENSION FOR UNFINISHED B1 (FIRST YEAR) AND B2 (SECOND YEAR) MODULES

To be allowed to have approval for the extension of the validity of results of a not successfully completed module with one year, a student has to meet the following criteria:
- A minimum of 75% of the yearly study load has been finished successfully (based on the weights of the tests)
- Two modules of the student's current academic year have been finished completely.
  'Modules of the student's current academic year' means: modules of the first year (B1) of the B-IEM programme for students in their first year of enrollment, modules of the second year (B2) of the B-IEM programme for students in their second year of enrollment.
- In this module, the student failed only one individual test

If a student meets the above mentioned criteria, the failed test will be offered during the next academic year. The compensation rules, as determined by the module coordinator and stated in the module description, in force during the academic year the student enrolled in the module the first time, will still be in force.

If the student does not successfully complete the failed test during the next academic year, (s)he will have to redo the entire module (except for successfully finished parts of this module of which the results remain valid).

6.1.2   EXTENSION FOR THIRD YEAR MODULES

The third year (B3) consists of two elective modules, the thesis preparation and the thesis project.
- For the elective modules the rules of the offering programme are applicable.
- B-IEM offers the elective HTHT module: Aerospace Management & Operations. For this module the lecturer determines the test opportunities which will be described in the module manual on the Canvas site.
- Module 11: Preparation Thesis is flexible and individual. For specific information we refer to its Canvas site.
- Module 12: Thesis is flexible and individual. See its Canvas site.

6.1.3   SPECIAL CIRCUMSTANCES

Personal circumstances can lead to adjustment of the criteria for extensions of the validity of test results. The conditions set for such extensions depend on the situation of the student. In any case conditions are:
- The student reports the disability or (foreseen) personal circumstances to the study counselor (preferably beforehand or as soon as possible)
- The Examination Board recognizes the special circumstances

- The maximum extensions of the validity of test results is one academic year (the year following the year in which the delay is requested) unless the Examination Board decides otherwise

In case of extreme, unforeseen circumstances, not covered with the above mentioned, the Examination Board will be asked for advice. The best possible solution will be discussed by mutual agreement. The programme director takes the final decision. The study counselor can be consulted for extra information and advice.

7 Other

7.1 Graduation with distinction (Cum laude)

The B-IEM programme has a regulation for graduating with distinction for the bachelor's degree programme. If during the Bachelor's examination, the student has given evidence of exceptional capability, 'cum laude' (with distinction) will be recorded on the degree certificate.

A student is considered to have exceptional capability if each of the following conditions is met:

a. the weighted average grade awarded for the individual tests, as registered in SIS, for the study units of the first year (B1), the second year (B2) and Module 11 of the third year (B3), is at least 8.0. To calculate this weighted average grade, the weights in SIS are used;

b. in the determination of this average, the units or individual tests that were not evaluated with a numerical grade or for which an exemption was granted, are not taken into account. Note that the grade of the bachelor's graduation project is also not included in the calculation;

c. no individual test of a study unit was evaluated as fail or evaluated with a grade < 5.5;

d. the grade for the final unit (Bachelor's project or bachelor's thesis) is at least an 8;

e. the programme must have been completed within four years, unless special circumstances justify the delay, to be determined by the Examination Board.

In exceptional cases the Examination Board may grant the designation of „graduation with distinction" if the conditions mentioned above have not been fully met. The rules applied by the Examination Board can be found in the Rules & Regulations of the Examination Board.

8 Intended learning outcomes, Weights and ECs per module

More detailed information on the intended learning outcomes can be found in the module descriptions in the Student Information System - Osiris - and at the Canvas site. Below you find the weights and ECs per module part.

Module component weights and ECs

Module 1: Introduction to IEM	EC	Weight
Introduction to Mathematics + Calculus 1A*	4	30
Probability	2	20
Domain Knowledge	2	0
Research Methodology	2	10
TBK programming	1	0
Project and Skills	4	40
Total	15	100

Module 2: Operations Management	EC	Weight
Calculus 1B*	3	25
Operations Strategy	3	25
Operations Research	3	25
Skills	2	0
Project	4	25
Total	15	100

Module 3: Business Intelligence and Information Technology	EC	Weight
Statistics and Probability	3	20
Research Methodology	2,5	10
Databases & Business Intelligence	2	15
Business Process Management & Enterprise Architecture	1,6	15
Project and Skills	5,9	40
Total	15	100

Module 4: Supply Chain Management	EC	Weight
Business Game and Skills	3	20
Demand/Supply Planning, Invent., Transp.	3	20
Sourcing and Supply Network Design	3	20
Statistics	3	20
Calculus 2*	3	20
Total	15	100

Module 5: Finance for Engineering	EC	Weight
Accounting and Finance	3,5	25
Option Pricing	2,5	15
Research Methodology	2,5	15
Project and Skills	6,5	45
Total	15	100

Module 6: Consumer Products	EC	Weight
Project Consumer Products and Skills	7,5	50
Technical Product Modelling 1	2,5	17
Manufacturing 1	2,5	16
Sustainability	2,5	17
Total	15	100

Module 7: From Product Design to Online Business	EC	Weight
Product Design to Online Business Theory	4	25
Project and Skills	8	50
Linear Algebra*	3	25
Total	15	100

Module 8: Modelling and Analysis of Stochastic Processes fo	EC	Weight
Stochastic Models	5	33
Project Stochastic Models	1,5	10
Simulation and Heuristics	3	20
Project Simulation and Heuristics	3,5	24
Multidisciplinary Project	2	13
Total	15	100

Module 11	EC	Weight
Project Plan	12	100
Skills	3	0
Total	15	100

Module 12	EC	Weight
Bachelor Thesis TBK	15	100
Total	15	100