INNOVATION MANAGEMENT

DEPARTMENT OF INDUSTRIAL ENGINEERING AND INNOVATION SCIENCES

EINDHOVEN UNIVERSITY OF TECHNOLOGY

QANU
Catharijnesingel 56
PO Box 8035
3503 RA Utrecht
The Netherlands

Phone: +31 (0) 30 230 3100
E-mail: support@qanu.nl
Internet: www.qanu.nl

Project number: Q0615

CONTENTS

This report was finalised on 18 April 2017

REPORT ON THE MASTER'S PROGRAMME INNOVATION MANAGEMENT OF EINDHOVEN UNIVERSITY OF TECHNOLOGY

This report takes the NVAO's Assessment Framework for Limited Programme Assessments as a starting point (19 December 2014).

ADMINISTRATIVE DATA REGARDING THE PROGRAMME

Master's programme Innovation Management

Name of the programme:	Innovation Management
CROHO number:	60430
Level of the programme:	master's
Orientation of the programme:	academic
Number of credits:	120 EC
Specialisations or tracks:	Business and Product creation; Managing innovation processes; Free track
Location(s):	Eindhoven
Mode(s) of study:	full time
Language of instruction:	English
Expiration of accreditation:	01/12/2017

The visit of the assessment panel Industrial Engineering and Management to the Department of Engineering and Innovation Sciences of Eindhoven University of Technology took place on 18-19 January and 20 February 2017.

ADMINISTRATIVE DATA REGARDING THE INSTITUTION

Name of the institution:	Delft University of Technology
Status of the institution:	publicly funded institution
Result institutional quality assurance assessment:	positive

COMPOSITION OF THE ASSESSMENT PANEL

The panel that assessed the master's programme Operations Management and Logistics in Eindhoven consisted of:

- Prof.dr.ir. R.E.C.M. (Rob) van der Heijden, Radboud University Nijmegen [chair];
- Prof.dr. H.M.C. (Harrie) Eijkelhof, Utrecht University;
- Prof.dr. E. (Erik) Demeulemeester, University of Leuven;
- Prof.dr. J. (Jan) Kratzer, Technische Universität Berlin;
- S. (Sofie) Vreriks BSc, University of Twente [student member].

The panel was supported by dr. E. (Els) Schröder, who acted as secretary. Appendix 1 contains the curricula vitae of the panel members.

WORKING METHOD OF THE ASSESSMENT PANEL

Cluster

The master's programme Innovation Management at Eindhoven University of Technology (hereafter: TU/e) was assessed as part of the cluster Industrial Engineering and Management and Systems Engineering, Policy Analysis & Management. The cluster Industrial Engineering and Management and Systems Engineering, Policy Analysis & Management encompasses eleven programmes at four universities: Delft University of Technology (hereafter: TU Delft), University of Groningen, University of Twente and TU/e. TU Delft served as first point of contact and secretary on behalf of all four universities. Dr. E. Schröder, project manager at QANU, assisted the cluster in organisational and practical matters.

The project manager approached independent panel members based on the programmes' recommendations, taking into account specialised tracks at the four institutions. The NVAO approved the panel composition on 10 October 2016. The cluster panel consisted of the following members:

- Prof.dr.ir. Rob van der Heijden, Radboud University Nijmegen [chair];
- Prof.dr. Harrie Eijkelhof, Utrecht University;
- Prof.dr. Erik Demeulemeester, KU Leuven, Belgium;
- Prof.dr. Jan Kratzer, Technische Universität Berlin, Germany;
- Prof.dr. Arthur Petersen, University College London, United Kingdom;
- Prof.dr. Marcel Veenswijk, VU University Amsterdam;
- Dr. Hens Runhaar, Wageningen University;
- Prof.dr. Emmo Meijer, Eindhoven University of Technology;
- Dr. Margriet Nip, Tata Steel;
- Dr. Hector Ramirez Estay, Université de Franche-Comté, France;
- Maarten van Ruitenbeek BSc, University of Groningen [student member];
- Sofie Vreriks BSc, University of Twente [student member];

Prof.dr.ir. Rob van der Heijden acted as panel chair during all four site visits. Additionally, prof.dr. Harrie Eijkelhof, an education expert with a long-standing academic career in the teaching of science, agreed to partake in all four assessments. Two QANU secretaries were appointed to assist the panel during site visits: QANU project manager dr. Els Schröder and dr. Barbara van Balen, independent NVAO-certified secretary. Calibration meetings took place on 15 December 2016 and 22 March 2017 between prof.dr.ir. Van der Heijden, prof.dr. Eijkelhof and both secretaries to attune the panels' findings to further assure consistency of assessment within the cluster.

Site visit TU/e

Preparation
The master's programme Innovation Management was assessed alongside two other programmes: the bachelor's programme Technische bedrijfskunde and the master's programme Operations Management and Logistics. These three programmes share a management, Board of Examiners and Programme Committee. Prior to the site visit, the panel asked the programmes to select representative interview partners. The panel met during the site visit with the programme management, current students, staff, alumni, members of the examination board and members of the Programme Committee of all three programmes.

In preparation for the assessment, the management provided a critical reflection for the master's programme. In this critical reflection, the management described the current state of affairs and provided useful information for the assessment of its programme. The project manager checked the report for completeness of information before sending it to the panel members.

In consultation with the chair, the secretary selected fifteen master theses, covering the full range of marks given. In addition, the selection covered a range of thesis subjects that represented the various examiners and master tracks.

Site visit
The site visit to the Department of Industrial Engineering and Innovation sciences at TU/e took place on the 18th and 19th of January and on the 20th of February 2017. This two-stage site visit was necessary due to the absence of two panel members during the original site visit of January. For the programme of the two-stage site visit, see Appendix 5.

Prof.dr.ir. Rob van der Heijden was unable to attend the site visit on the 18th and 19th of January 2017 due to illness. Prof.dr. Harrie Eijkelhof stepped in as acting chairman. During the site visit, prof.dr.ir. Van der Heijden's input and questions were put forward in the various interview rounds and he was extensively consulted by telephone during both days. Prof.dr. Jan Kratzer was also absent during the site visit in January due to personal circumstances. Both prof.dr.ir. Van der Heijden and prof.dr. Kratzer prepared for the site visit. They both independently assessed a selection of bachelor's and master's theses, which was shared by email with the other panel members and the panel secretary.

On the 20th of February 2017, prof.dr.ir. Van der Heijden, prof.dr. Eijkelhof and prof.dr. Demeulemeester returned to Eindhoven with the panel secretary for two additional discussion rounds to finalise the site visit, allowing prof.dr.ir. Van der Heijden to ask further questions and to formulate an independent assessment of the bachelor programme and two master programmes. Prof.dr. Kratzer en student member Vreriks were otherwise engaged and could not attend this additional visit. Both were briefed regarding the additional visit and read the draft report prepared by the secretary, allowing for their comments and input. After consultation amongst the panel members to discuss the new impressions, prof.dr.ir. Van der Heijden presented the panel's preliminary findings and general observations at the close of this February visit. This presentation was open to all.

The panel also examined relevant study material, assessment forms and additional material during the site visit. This material is listed in Appendix 6. The panel provided students and lecturers the opportunity to meet informally during a consultation hour outside the set interviews. No requests were received for this option.

Report
Based on the panel's findings, a draft report was prepared by the secretary. All panel members commented upon the draft report and their comments were implemented accordingly. Subsequently, the programme checked for factual irregularities. Comments by the programme were discussed between secretary and chair and, where necessary, other panel members before finalising the report.

Decision rules
In accordance with the NVAO's Assessment framework for limited programme assessments, the panel used the following definitions for the assessment of both the standards and the programme as a whole.

Generic quality
The quality that can reasonably be expected in an international perspective from a higher education bachelor's programme.

Unsatisfactory
The programme does not meet the current generic quality standards and shows serious shortcomings in several areas.

Satisfactory

The programme meets the current generic quality standards and shows an acceptable level across its entire spectrum.

Good
The programme systematically surpasses the current generic quality standard.

Excellent
The programme systematically well surpasses the current generic quality standard and is regarded as an international example.

SUMMARY JUDGEMENT

The master's programme Innovation Management (hereafter: IM) is a full time programme, consisting of 120 EC spread evenly over two years. It is taught in English. IM is part of the School of Industrial Engineering (hereafter: School IE) with the bachelor's programme Technische bedrijfskunde (Industrial Engineering and Management in English; following the programme's practice, hereafter: IE) and the master's programme Management and Logistics (hereafter: OML), as offered by the Department of Industrial Engineering and Innovation Sciences (hereafter: Department IE&IS) at the Eindhoven University of Technology (hereafter: TU/e). The Educational Board of the School IE consists of a programme director, a vice-director, and two programme chairs. It is supported by a quality assurance officer and two study advisors.

IM has a unique profile, in so far that it is the only two-year engineering programme combining new product development, strategic marketing, business intelligence and entrepreneurship. The panel renders the programme's profile, with its emphasis on innovation and the design of products, appropriate and valuable, serving a clear demand for academic engineers within the Netherlands and beyond. The panel concluded that the programme's intended learning outcomes meet the Dutch qualifications framework and Dublin criteria and that they tie in with the perspective of the requirements set by the professional field. It recommends to further concretise these intended learning outcomes to strengthen the programme's profile, to create further transparency and to fuel student learning. It also suggests rendering the programme's international ambitions in both its profile and the intended learning outcomes to further strengthen its, and the School IE's, unique position in the field of IE&IS.

IM is one of two of the School IE's master's programmes. Its programme and curriculum design was completely revised to fit the newly created TU/e Graduate School, which introduced a uniform format for all TU/e master's programmes based on a structure of 15 EC per quartile in order to facilitate alignment between different tracks, programs and departments. The programme and curriculum are based on four elements that feed into their design: six core courses (30 EC), six elective courses in one of three tracks allowing for disciplinary specialisation within IM (30 EC), six elective courses (30 EC) and a master's thesis project, including a preparatory research proposal (30 EC). The IM programme and curriculum is embedded in the School IE's research interests, but also provides a clearly distinctive master's programme. The panel recommends the programme to consider introducing the literature review as a compulsory second-year course. This could potentially result in more focus during the thesis process and a more developed scientific underpinning of the presented research in the theses.

The curriculum offers two distinctive tracks for further specialisation within the field and also allows excellent and ambitious students to either specialise into research or to combine degrees in a third, or 'special', track. The first track 'Business and Product Creation' focuses on creative idea generation, opportunity generation, entrepreneurial action and initiating break-through projects in emerging new markets and new services. The second track 'Managing Innovation Processes' is set in existing markets and services. It is directed towards analysis of the market and the management of supporting processes to secure continuous improvement and innovation. The third track differs from the first two tracks and is directed towards promoting excellent research. It is identified as the 'Special/Free Track', and is created for students who want to focus on research. With their mentor's close advise, students choose within this track six elective courses at master's level that must create a coherent study path and are tailored towards their individual needs and research interests. The panel ascertained that the three specialisation tracks offer plenty of opportunity for gaining expertise within the discipline while also creating an distinctive profile for individual students. The programme also benefits from a wide variety in excellence programmes offered by the School IE and the university.

The internationalisation programme of IM is extensive and ambitious. The panel appreciates the programme's emphasis on internationalisation within the master's programme, considering it an

example of good practice in the Netherlands. During the site visit, the panel learned that the teaching staff, and in particular mentors, closely advised students regarding potential courses at international universities. The panel considers this practice not only as an excellent way to vet universities and courses abroad, but also indicative of the broad international networks in which the teaching staff of the School IE participate and interact. It is therefore exemplary for the international outlook of the TU/e and indicative of the School IE's chances to actually meet their ambitious internationalisation goals.

The panel verified that the student learning environment at the master's programme IM enables students to meet the intended learning outcomes. The coherence and content of the programme is well-structured and based on up-to-date scientific research and embedded within an engineering context, reflecting IM's focus on innovation and programme design. The panel was in particular appreciative of 'Design Project for Managing Innovation Processes', which it considered an excellent preparation for both the master's thesis project and the actual practice within the work field. Also, the clear and well-laid out thesis manual was considered commendable. The development of students' professional skills is organised on an individual basis, supervised by the students' mentors. Although the panel appreciated the centrality of the professional skills in the TU/e Graduate School, its highly personal and individualised set up demands continuous evaluation of both students' and mentors' performance.

The programme enjoys a dedicated teaching staff that uses innovative teaching methods to fuel student learning. Within the School IE, the panel considers IM an example of good practice in this regard. Staff members regularly meet and align their courses, and also take demands and practices of the work field into account. The variation offered of software packages, for example, prepares students for the different situations they may encounter upon entering the job market. The panel appreciates the staff's proactive attitude regarding the challenges posed by the new curriculum and programme design and the increased workload in response to the increase in students since 2012. Notable improvements regarding the professionalisation and reflection skills of the staff have been recognised by the panel, and it advises the management to continue doing so.

IM benefits from a diverse student intake, which the panel considers an advantage for a programme that focuses on product design and innovation, and the challenges these pose at management level within a company or organisation. The programme also manages to successfully prepare its diverse student intake to meet the intended learning outcomes. The internationalisation programme of IM is extensive and ambitious, and functions well. A high number of students take parts of their studies abroad, which the panel considers both desirable and praiseworthy. With a wide variety of options, a well-functioning homologation and internationalisation programme and a professional and innovative staff, IM's teaching-learning environment offers a good environment for students to achieve the intended learning outcomes.

The panel established that the master's programme IM has a satisfactory assessment system. The quality of assessment and achieved learning outcomes is safeguarded. Examinations are drafted with the involvement of two members of staff, and marked by two independent examiners. The quality of assessment of the master thesis is assured by the involvement of three members of staff: two supervisors and an independent assessor that assures the engineering aspect and disciplinary focus of the thesis project. The BoE's aims to develop test matrices for the different programmes in the school, an ambition warmly supported by the panel. Some other improvement could be considered. The panel recommends to redesign the thesis assessment forms for further qualitative feedback and additional transparency into the composition of grades. Furthermore, separate forms for all examiners would fuel further transparency into the assessment process.

The Board of Examiners (hereafter: BoE) of the School IE functions within the constraints of the law. It regularly convenes with the management and informs both students and staff about assessment procedures and assures the quality of assessment throughout the programme. The BoE's MSc thesis assessment committee is bound to perform stratified spot checks of the BEP. This is appreciated and

deemed necessary by the panel to safeguard the quality of assessment. Therefore, the panel concluded that the BoE at IM is in control and has various instruments in place to guarantee a fair assessment of all assessments, including the master thesis project.

The panel learned that a course assessment committee has been introduced to perform spot checks, both proactively and reactively, on course assessments in December 2016. Although the panel could not verify the benefits of this measure yet, it warmly supports it. Adequate time allowances should be allocated to staff members performing this important task. The panel advises the BoE to also consider introducing spot checks by independent educationalists in order to annually screen (a selection of) individual courses in its totality to further assure the quality of the programme.

The panel ascertained that graduates of the master's programme IM achieved the intended learning outcomes at a satisfying level, based on the quality of their theses. The level of the master's thesis projects concurs with the level that could be expected from an academic master's programme. All theses were adequately graded. Master graduates easily enter the job market, on which their profile and skills are valued. Although the School IE has an established alumni organisation in place, the panel advises the programme to intensify its ties with its alumni and to strongly support Alumnia's initiatives.

The panel assesses the standards from the *Assessment framework for limited programme assessments* in the following way:

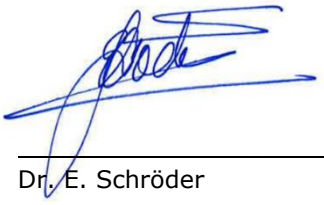
Master's programme Innovation Management

Standard 1: Intended learning outcomes	satisfactory
Standard 2: Teaching-learning environment	good
Standard 3: Assessment	satisfactory
Standard 4: Achieved learning outcomes	satisfactory
General conclusion	satisfactory

The chair and the secretary of the panel hereby declare that all panel members have studied this report and that they agree with the judgements laid down in the report. They confirm that the assessment has been conducted in accordance with the demands relating to independence.

Date: 18 April 2017

Prof.dr.ir. R.E.C.M. van der Heijden



Dr. E. Schröder

DESCRIPTION OF THE STANDARDS FROM THE ASSESSMENT FRAMEWORK FOR LIMITED PROGRAMME ASSESSMENTS

Organisation of the degree programmes
The master's programme Innovation Management (hereafter: IM) is a full time programme, consisting of 120 EC spread evenly over two years. It is taught in English. IM is part of the School of Industrial Engineering (hereafter: School IE) with the bachelor's programme Technische bedrijfskunde (Industrial Engineering and Management in English; following the programme's practice, hereafter: IE) and the master's programme Management and Logistics (hereafter: OML), as offered by the Department of Industrial Engineering and Innovation Sciences (hereafter: Department IE&IS) at the Eindhoven University of Technology (hereafter: TU/e). The Educational Board of the School IE consists of a programme director, a vice-director, and two programme chairs. It is supported by a quality assurance officer and two study advisors.

Standard 1: Intended learning outcomes
The intended learning outcomes of the programme have been concretised with regard to content, level and orientation; they meet international requirements.

Explanation:
As for level and orientation (bachelor's or master's; professional or academic), the intended learning outcomes fit into the Dutch qualifications framework. In addition, they tie in with the international perspective of the requirements currently set by the professional field and the discipline with regard to the contents of the programme. Insofar as is applicable, the intended learning outcomes are in accordance with relevant legislation and regulations.

Findings

Profile and aims
The programme's main aim is to educate academic engineers who, from a design perspective, possess scientific knowledge on and insight into the behaviour and performance of innovation processes in technology-intensive and knowledge-intensive organisations. Graduates are able to perform design-oriented research and to develop and test science-based designs within the domain of the programme. Knowledge and insight into the domain of Innovation Management originate from the disciplines of organisation sciences, marketing sciences and innovation sciences, information systems, work and organisational psychology, and engineering economics. During their studies, students hereto set their studies and research in three capacity groups of the School IE: Innovation, Technology Entrepreneurship & Marketing (ITEM), Human Performance Management (HPM) and Information Systems (IS).

The panel studied the programme's profile and concluded that it focuses on innovation of process and business development. Its focus is unique in the Netherlands within the field of IE&IS, in so far that it is the only two-year engineering programme that, in the eyes of the panel, adequately combines process development, strategic marketing, business intelligence and entrepreneurship, with additional attention to prototyping. The panel appreciates that students of the programme are also concerned with the development of prototypes, which may result into patent claims. The panel renders the programme's profile appropriate and valuable, serving a clear demand for academic engineers with an eye for product design and development in the Netherlands. It also verified that IM's aims and mission differ considerably from the School IE's second master's programme OML, which in turn focuses on logistics and operational processes and applied engineering techniques.

During the site visit, the panel learnt that internationalisation is high on the agenda for the School IE in Eindhoven. Currently, over 60% of all its master students, both in OML and IM, pursue parts of their master studies abroad. The management aims to raise this number to 95% of students in both

masters. The panel appreciates these ambitions and suggests translating the internationalisation goals more explicitly in the master's profiles to further strengthen its unique profile, including the formulation of an intended learning outcome directed towards international collaboration and/or orientation as part of the master's programmes.

Domain-specific reference framework
The panel studied the domain-specific reference framework and finds it well-formulated. The framework was informed by international standards in the field as formulated by leading academic institutions, amongst which the Institute of Industrial Engineers, Stanford University and Georgia Tech, and the criteria of the professional criteria of the Accreditation Board for Engineering and Technology (hereafter: ABET). In the panel's view, the framework gives an adequate description of the profile and objectives of the international field in IE&SE. The panel is satisfied with the listed competences for graduates in the framework of reference. Regarding content and orientation, the learning outcomes encompass what might be expected of academic bachelor's and master's programmes in the field of IE&ES. Nevertheless, the panel finds the differentiation between bachelor's and master's level in the domain-specific framework rather generic, in particular with regards to the listed general academic qualities.

Intended learning outcomes
Whereas the panel considered the learning outcomes in the domain-specific framework too generic, it considered the translation of these learning outcomes in the IM programme of the TU/e adequate, yet still further concretisation could benefit the curriculum (see Appendix 3). Clear, precise learning outcomes could manage student expectations, clarify objectives, inform curriculum improvement and make the assessment more transparent. It would also further clarify the differentiation between IM and other master programmes in the field of IE&IS, demonstrating even more clearly the added value of enrolling into a master's degree programme. Clearly defined learning outcomes could also provide an additional control mechanism to direct student learning within the programmes.

The panel verified that the programme made appropriate and motivated choices within the domain of IE&ES resulting in an emphasis on product development and the enhancement of innovation processes, which have been translated into both programme- and domain-specific learning outcomes. These indicate an emphasis on scientific knowledge of the design, behaviour, planning in technology-intensive and knowledge-intensive organisations, the research skills needed to independently conduct studies meeting academic standards in the domain of Innovation Management, and the ability to model and (re)design a complex business process, based on the results of a study, including specifications and required information. In the panel's eyes, these learning outcomes are appropriate to translate the programme's aims. They adequately set the programme apart from other masters in the domain of IE&IS and from the School IE's second master's programme OML.

Next to these domain-specific choices, the programme formulated four general scientific learning outcomes and seven academic criteria. These learning outcomes and criteria secure the programme's academic quality. The general scientific learning outcomes address the ability to reflect and solve problems, to communicate clearly and unambiguously both in industry and in academia and with non-specialists and specialists in the domain, to operating independently as well as in (multidisciplinary) teams, and to create awareness of the social context in which graduates of the programme will work and of the social impact of their work. The academic criteria focus on the obtainment of multidisciplinary knowledge, independent research skills meeting academic standards, the ability to model and design based on the results of study, the ability to perceive one's own and organisational learning process and to creatively solve problems, co-operation and communication and an understanding of the temporal and social context in which students and graduates of the programme will work.

The panel ascertained that these intended learning outcomes meet the requirements of the Dublin criteria and are at the appropriate level for a master's programme. Additionally, the programme

meets the requirements of the ACQA framework, which is based on the Meijer's criteria for academic curricula as developed by the Dutch Universities of Technology. It learnt during the site visit that the master's Programme Committee was involved in the formulation of the intended learning outcomes, and that they were therefore well-embedded in the design of the master's curriculum. Although the panel appreciates the way in which the IM differentiated the various learning outcomes in categories, it feels that these generic outcomes could be further concretised to fuel student learning. Precise learning outcomes could clarify objectives, inform curriculum improvement and make the assessment more transparent. It would also further set apart the unique take of the programme.

Considerations
The panel considers it positive that the master's programme IM focuses on innovation and the design of products. It is unique in the Netherlands, in so far that it is the only two-year engineering programme combining new product development, strategic marketing, business intelligence and entrepreneurship. The panel renders the programme's profile appropriate and valuable, serving a clear demand for academic engineers with an eye for product design in the Netherlands. The panel concluded that the intended learning outcomes meet the Dutch qualifications framework and Dublin criteria and that they tie in with the perspective of the requirements set by the professional field.

The programme's profile and mission have been appropriately translated into both programme- and domain-specific learning outcomes. Whereas the panel considered the learning outcomes in the domain-specific framework generic, it considered the translation of these learning outcomes in the IM programme of the TU/e adequate. Nonetheless, they could still be further concretised. In the panel's view, distinctive learning outcomes would be able to translate the unique features of the programme, to create further transparency and fuel student learning. It also suggests rendering the programme's international ambitions in both its profile and the intended learning outcomes to further strengthen its, and the School IE's, position in the field of IE&IS.

Conclusion
The panel assesses Standard 1 as 'satisfactory'.

Standard 2: Teaching-learning environment
The curriculum, staff and programme-specific services and facilities enable the incoming students to achieve the intended learning outcomes.

Explanation:
The contents and structure of the curriculum enable the students admitted to achieve the intended learning outcomes. The quality of the staff and of the programme-specific services and facilities is essential to that end. Curriculum, staff, services and facilities constitute a coherent teaching-learning environment for the students.

Findings

Programme and curriculum design
IM is one of two of the School IE's master's programmes. Its programme and curriculum design was completely revised to fit the newly created TU/e Graduate School (hereafter: TU/e GS), which introduced a uniform format for all TU/e master's programmes based on a structure of 15 EC per quartile in order to facilitate alignment between different tracks, programs and departments.. The revised master's programme IM offers a two-year full time programme of 120 EC. The programme and curriculum are based on four elements that feed into their design: six core courses (30 EC), six elective courses in one of three tracks allowing for disciplinary specialisation within IM (30 EC), six elective courses (30 EC) and a master's thesis project, including a preparatory research proposal (30 EC). The programme is scheduled in such a way that students have in the first and second quartile of their second year of study ample opportunity to follow electives away from the TU/e, preferably abroad. For an overview of the programme, see Appendix 4.

IM core courses are provided by the School IE within the three disciplinary groups contributing to the master's programme, namely Innovation, Technology Entrepreneurship & Marketing (ITEM), Human Performance Management (HPM) and Information Systems (IS). All IM students take six mandatory courses, which find their home in all three disciplinary groups. Three courses focus on content: 'Management of Product Development' (5 EC), 'Marketing and Innovation' (5 EC) and 'Human Aspects of Innovation' (5 EC). The other three courses focus on relevant methods: 'Multivariate Statistics' (5 EC), 'Business Intelligence' (5 EC)) and 'Design Science Methodology' (5 EC). These core courses are all taught in the first year, covering the entire innovation process from ideation to product launch.

Next to core courses, students choose a specialisation track within one of three tracks developed for IM in their first year. These tracks exist of six elective courses of 5 EC each. The first track 'Business and Product Creation' focuses on creative idea generation, opportunity generation, entrepreneurial action and initiating break-through projects in emerging new markets and new services. The second track 'Managing Innovation Processes' is set in existing markets and services. It is directed towards an analysis of the market and the management of supporting processes to secure continuous improvement and innovation. Within these two tracks, all students elect five courses within their track. Their sixth course is a mandatory design project.

The third track differs from the first two tracks and is directed towards promoting excellent research. It is identified as the 'Special/Free Track', and is created for students who either follow an excellence programme in research or a dual-degree programme. With their mentor's close advise, students choose within this track selective courses at master's level that must create a coherent study path, tie in with the IM profile, and are tailored towards their individual needs and research interests. The 'Special/Free' track is highly individual and closely monitored by staff and approved by the Board of Examiners.

In their second year, students can freely choose relevant electives at master's level to deepen and/or broaden their knowledge in the first two quartiles. Studying abroad is strongly encouraged by the programme, resulting in a wide variation of options for students. The student's mentor is closely involved with identifying suitable courses and opportunities for studying abroad at this stage of the study path of the individual students. In their last two quartiles, students need to execute an empirical master's thesis project (30 EC) in a company or service organisation, for which they write a mandatory research proposal and a thesis report. Additionally, they create a scientific poster as a prerequisite for the thesis defence.

The panel considers the master's programme design and the way it is implemented into the curriculum well-structured and reflecting the programme's profile. It enables students to meet the intended learning outcomes of the programme, resulting in a master's degree with a clear focus on innovation and the design of products. The IM programme and curriculum clearly differs in this respect from the School IE's other master's programme OML, which is more directed towards strategic decisions of operational and logistic processes. In the panel's eyes, the programme IM lays a good foundation for students of the programme to do well in the job market upon graduation.

The three specialisation tracks offer plenty of opportunity for gaining expertise within the discipline while also creating an individual profile. In the panel's eyes, both 'Business and Product Creation' and 'Managing Innovation Processes' offer a coherent curriculum and plenty of choice for individual specialisation. The panel is in particular pleased to learn that the programme also allows for further orientation on research with the 'Special/Free Track', giving master students the opportunity to more extensively explore the option of research. The 'Special/Free Track' also allows for further diversification and multidisciplinary focus, as it creates the opportunity for students to follow a dual-degree programme. This track, however, also introduces the need for close supervision of the individual student's choices. The mentor system which supervises these choices, controlled by the Board of Examiners, seems to function well. Students indicated to feel well-advised by their mentors

and the study advisor in selecting suitable electives. Nevertheless, the panel wants to bring the need for continuous support and supervision to the attention of the programme.

At first, the panel was slightly surprised to find 'Multivariate Statistics' a master's course rather than a bachelor's course. During the site visit, teaching staff and management explained that this choice was the result of the changes within the TU/e programme structure upon the introduction of the TU/e Bachelor College. After studying the material of this particular course, the panel agreed that the current course was at the appropriate degree level and thus fully supports the programme's decision. It also discussed the 'Literature Review' as an elective course of 5 EC with the teaching staff, as the panel considered this elective a good preparation for the master's thesis project and wondered whether it should be compulsory for all IM students. Although the teaching staff emphasised that no student would be able to pass their master's thesis project without including a sufficient theoretical framework based on scientific literature, the panel still recommends the programme to consider introducing the literature review as a compulsory second-year course. This could potentially result in more focus during the thesis process and a more developed scientific underpinning of the presented research in the theses.

IM's staff indicated in an interview with the panel to regularly discuss the coherence of the programme to align their courses. The panel discussed with the staff the use of multiple software packages in the various IM courses, a variety brought to its attention by IM students in an earlier interview during the site visit. The panel found this diversity on offer a deliberate choice by the staff, aimed at introducing various software to IM students to reflect practices in the work field. It agreed with the staff that this was a valuable learning experience for students and that greater software alignment is not desirable, despite student complaints. The panel considers this deliberate choice for software variation an example of the thought-through set up of the programme and the programme's alignment with the demands of the work field.

The panel studied a selection of material and handbooks of several courses (see Appendix 6) and rendered these relevant and up-to-date with current scientific research. The panel was in particular positive about the studied material for the course 'Design Project for Managing Innovation Processes', which it considered good practice in combining research with the actual practice and demands within the work field. Also, the clear and well-laid out thesis manual which clearly lists both supervisor and student expectation was seen as useful. The panel concluded that students of IM encounter relevant and up-to-date literature and methods, are allowed to develop their research skills, to learn to use and question scientific theory and models and to acquire an academic, inquisitive and problem-solving attitude within their master's courses.

In addition to their courses aimed at acquiring knowledge and the ability to use and question models and methods, the programme also allows for the development of students' soft skills. Students' skills are diagnostically tested at the start of the master's programme to identify the help needed to develop each student's individual skills. Several elements are tested in this assessment: a broad set of thirteen competencies as identified by the professional field and the TU/e Academic Competencies and Qualities Assurance office, collaboration, presentation and academic writing skills. Based on the test results, an individual skills development plan is discussed with the mentor. Students follow, if necessary, university-wide courses to advance their underdeveloped skills. Additionally, during their master courses in the IM programme they work on the development of their skills and are regularly tested in writing assignments, presentations and within project work. Students are obliged to report their progress in an individual portfolio under their own responsibility. The mentor then assures that students have duly developed their professional skill set according to the development plan at a satisfactory master's level before allowing students to graduate.

The panel is positive about the way in which students are motivated to work on their individual skill sets, yet feels slightly apprehensive about the diagnostic tests used to determine students' areas of 'concern'. Teaching staff and management emphasised, again, the close personal involvement of mentors in creating the students' development plan and in monitoring the students' progress. The

panel appreciates the mentors' involvement, but also sees in this involvement a potential element of subjectivity and inequity – not all mentors may be equally equipped to identify students' needs, even if undertaken with the best of intentions. In interviews with the panel, both students and teachers indicated that the monitoring of the professional skills is adequately evaluated. The panel advises the programme to be continuously aware of teaching staff's coaching role regarding the development of professional skills and to support them in it, when necessary.

Excellence programmes and internationalisation
The panel appreciates the wide variety of programmes aimed at strengthening the students' profile. The School IE offers two excellence programmes of 20 EC, which can be followed on top of the IE programmes: in design, preparing for the Professional Doctorate in Engineering (PDEng) programme, and in research, preparing for the PhD programme. In addition, The TU/e Honors Academy offers a highly competitive option for all TU/e master's students: it teaches personal leadership skills in a professional context in science, society or industry in another 1 EC-programme. Additionally, all TU/e students may aim to pursue the Certificate Technology Entrepreneurship and Management (CTEM), a programme consisting of 25 EC of which 15 EC may be obtained as part of their master's programme. This option is unique for the TU/e and considered a good opportunity for further differentiation by the panel.

The panel also values the emphasis on internationalisation within the master's programme, considering it an example of good practice in the Netherlands. During the site visit, the panel learned that the teaching staff, and in particular mentors, closely advised students regarding potential courses at international universities. The panel considers this practice not only as an excellent way to vet universities and courses abroad, but also indicative of the broad international networks in which the teaching staff of the School IE participate and interact. It is therefore exemplary for the international outlook of the TU/e and indicative of the School IE's chances to actually meet their ambitious internationalisation goals.

IM students were positive about the opportunities offered for international study during their master's programme. They felt well-prepared and supported by their mentor and programme management, both in advance and during their months abroad. Overall, they considered their foreign experiences as of great value and the courses taken abroad in general at the required master's level – albeit with some exceptions to this general rule. They were actively questioned about their foreign experiences and felt that their feedback was taken into account, in particular with respect to courses failing to meet their (degree level) expectations. The panel verified in several conversations that active monitoring is indeed common practice and that encountered problems and irregularities regarding content or level at foreign universities are acted upon. It therefore feels satisfied regarding the monitoring of the international components of IM's master's programme and it praises the School IE's successful internationalisation programme.

Enrolment, feasibility and study progress
Students enrolling in the master's programme have a degree from a university bachelor's programme IE from either the TU/e, University of Groningen, University of Twente, Delft University of Technology, or a degree from a hbo bachelor's programme in the area of Industrial Engineering supplemented by the successful completion of a premaster's programme, consisting of six courses with a maximum of 30 EC. For TU/e Bachelor College students, the USE-package 'New Product Development and Marketing' or 'Technology Entrepreneurship' is recommended. Enrolment from other university and hbo bachelor's programmes and the need for supplementing these with an additional premaster's programme are discussed on an individual basis and monitored by the admissions committee. In the event that this tailor-made homologation programme is 15 EC or less, students are directly admitted to the programme. Students can then follow these homologation courses in their master's programme.

During the site visit, the panel spoke with several IM students with an alternative background to the university bachelor's degree in Industrial Engineering: they met two students with a completed

bachelor's degree from Industrial Design, with a student with a completed bachelor's degree from Wageningen University of Research and with a student with a bachelor's degree from a hbo-programme in Industrial Engineering. Students and their teaching staff confirmed the diversity of IM's intake and considered it a positive aspect of the programme, a conclusion corroborated by the panel. All students considered their preparation for IM sound. They were positive about the premaster courses and the help offered during their studies when further additional instruction was needed. They did not encounter particular problems in following suit during their master's studies and praised their mentor's involvement and the engaging and motivating study climate amongst students. The panel concluded that IM has a good homologation programme in place that allows students from various backgrounds to succeed in the IM master's programme.

The panel verified during the site visit that no obvious differences exist in study progress between students with a background in IE or an alternative background to IE. All IM students met during the site visit considered the programme feasible within two years, but indicated that many students were highly ambitious and sought to extend their study load with additional course work and/or work experience, resulting in course loads of up to 50 hours a week and study delays. Members of staff confirmed the students' serious attitude and dedication towards their master studies, but also toned down the image of students only encountering delays as a result of their own ambitions. The panel considers the study climate at IM healthy and has the impression that the programme is feasible within two years of study. It encourages the programme to keep on monitoring the students' progress and to keep evaluating the course load for continuous improvement.

Didactic methods
In its didactic approach, the master's programme aims to provide students with the knowledge and skills needed to function independently, in more complex settings and at master's level. Hereto, students follow lectures and tutorials, complete assignments (both individually and in small group work) and apply their skills in increasingly complex settings. They are closely supervised by their personal mentor, who supervises and advises them during the full two-years of their master's studies. Students follow lectures with active researchers that integrate their own research with the concepts, models and ideas taught. This close connection between up-to-date research and research methods was also reflected in the courses studied by the panel during the site visit. In conversation with the panel, students indicated to appreciate and recognise these direct links between research and teaching. They also praised the guest lecturers that were invited to participate in certain courses, linking research to work practices in order to show implementations of research into practice.

Staff felt supported by both the management and by the expertise provided by the university, in particular the offered TEACH programme and training opportunities. They regularly share their experiences and also reflect on their own teaching methods. The panel was positively surprised with the innovative teaching methods used by the IM staff. Staff indicated to experiment with blended learning forms, for instance by flipping the class room in order for students to take charge of their own learning experience, using peer-review methods and by making use of PechaKutcha presentation methods during their lectures. Students reflected positively on these experiments. In the panel's eyes, the teaching methods, lectures and tutorials are in line with the contents of the curricula and support the students to achieve the intended learning outcomes. It praises IM for its clear eye for innovative teaching methods and considers IM's active embracement of innovative methods commendable within the School IE.

Staff, support and student community
The quality of the teaching is monitored by the Programme Committee. The students in general were positive about the quality of the teaching. A 'Basiskwalificatie Onderwijs' (hereafter: BKO, University Teaching Qualification in English) must be obtained by all new faculty members within three years after being appointed and by tenured faculty members who wish to be promoted from assistant professor to associate professor, or from associate professor to full professor (these are TU/e requirements). The panel learned during the site visit that the amount of BKO-holders has vastly improved in the School IE from 53% (December 2015) to 65% (February 2017), with another 18%

of teaching staff currently enrolled in BKO-training courses. The panel also learned about the continuous support to develop staff's teaching skills in teach-the-teacher meetings to exchange examples of best practice in university teaching. The panel congratulates the School IE on its active BKO training policy and the vast improvements over the last years, and encourages to continue their staff's professionalisation and reflection skills.

The panel found students of the School IE, both at bachelor's and master's level, very positive about the availability and accessibility of the academic staff, who engage in informal and formal feedback, and are willing to answer questions regarding the courses and/or students' individual study paths. They also value the willingness of staff to guide them in one-to-one meetings and their openness to feedback. The quality of their teaching is rated high. In the critical reflection, the management of the School IE indicated their student-to-staff ratio as a point of current concern. The revised programme and increase in admission rates has increased the workload for both academic and supporting staff dramatically since 2012. Staff indicated in interviews with the panel to feel pressed for time due to their teaching load, resulting in less time available for research. Nonetheless, it is still possible to ask for a quartile free of teaching in order to focus on research. In addition, the management recently hired new staff members and the student-to-staff ratio dropped subsequently from 33.2 to 30.6 within the School IE. This is still high, but the panel is convinced that the concerns are adequately met by the management.

Master students are supported during their studies by a variety of members of the School IE's community. The study advisor monitors students and is available to answer questions about study planning, study progress, study-related or personal issues that may affect a student's success in the programme and is involved if special circumstances arise. In addition, international students are assigned a 'study buddy' or student mentor, a fellow student that is specifically trained to support international students to make them feel at home within the TU/e student community and to offer help and advice regarding practical matters. Nonetheless, in the critical reflection the programme indicated to consider the integration of international students still 'limited'. During the site visit, language skills of international students were mentioned as a matter that needed close supervision, even though the TU/e has adequate entry requirements in place. The panel appreciates the attention paid to international students arriving in Eindhoven for their master's studies and want to congratulate the programme on its thorough supervision programme.

The School IE is proud of its generous time allowance for supervision and the IM master's programme benefits from a highly personalised supervision system. All master students choose a personal mentor, an experienced lecturer and qualified researcher, during their first semester. Mentors supervise students during the entire master's studies and act as first supervisor during the master's thesis project. They advise students regarding curriculum choices, the development of professional and personal skills and with respect to studying abroad. Students are highly appreciative of their student mentor's involvement and availability and the panel considers it a well-functioning and appropriate system for helping students to make the most of their studies.

Supervision during the master's thesis project is extensive. Staff members are assigned 70 hours in total to mentor master students during their master's thesis project, including reading, and marking: 55 hours are assigned to the first supervisor/mentor and 15 hours to the second and third supervisor combined. Tasks between the three members of the thesis assessment committee are clearly defined. The first supervisor is involved in daily supervision; the supervised master theses are by and large an integral part of his or her own research projects and therefore are well-embedded within a capacity group's research. The second supervisor is selected from any of IM capacity groups, keeps an eye on the overall process and is involved in the go/no go decision based on the thesis plan. The third supervisor is not involved in actual supervision, but acts as an assessor. The assessor represents a more disciplinary focus than the first and second supervisor and is qualified to judge whether the engineering aspect is properly represented in the master's thesis project. In meetings with the panel, both students and teaching staff were highly appreciative of the current supervision system.

Industria, the School IE's Study Association, is also active in creating community building. Industria offers both social and study-related meetings and activities, of which company visits and study trips are rated highly by the students that the panel met during the site visit. Industria also organises formal feedback sessions, of which the results are shared and discussed with the programme management. Alumnia, the alumni association of all three programmes of the School IE, regularly organises network opportunities for former and current students. These initiatives are appreciated by students, but both the students and alumni met by the panel indicated that they would like to further establish connections between the work field and the student community. The panel therefore feels that Alumnia may be underused for creating links between the student community and the work field based on the reports by both students and alumni. It therefore recommends the programme to intensify its ties with its alumni and to strongly support Alumnia's initiatives. Alumni could potentially be a good source for internships, job market orientation.

The panel looked into the active involvement of stakeholders in the programme design. Both the Programme Committee and the student association Industria formally and informally advised the management on the curriculum redesign, and continue to do so. The academic staff was extensively involved in the programme redesign. They continue to meet on a regular basis, both plenary and within capacity groups, to discuss the curriculum and design of the master's programme, and to suggest changes driven by scientific research. The panel verified that the Programme Committee actively studies course evaluations and advises on measures to be taken in reaction to negative feedback by students. It also tracks the actions taken by the management regarding feedback. Both students and academic staff indicated to benefit from an open-door policy, which results in informal conversations on the content of courses and the curriculum design. Students pointed out to be taken seriously when offering feedback on their programme. Their feedback was promptly met by both teachers and the management.

Considerations

The IM programme and curriculum is embedded in the School IE's research interests and provides a clearly distinctive master's programme. The curriculum offers two distinctive tracks for further specialisation within the field and also allows students to either specialise onto research or to combine degrees. The three specialisation tracks offer plenty of opportunity for gaining expertise within the discipline while also creating an individual profile. The programme benefits from a variety in excellence programmes offered by the School IE and the university. In the panel's eyes, the programme IM lays a good foundation for students of the programme to do well in the job market and academia upon graduation.

The panel verified that the student learning environment at the master's programme IM enables students to meet the intended learning outcomes. The coherence and content of the programme is well-structured and based on up-to-date scientific research and embedded within an engineering context, reflecting IM's focus on innovation and programme design. The panel was in particular appreciative of 'Design Project for Managing Innovation Processes', which it considered an excellent preparation for both the master's thesis project and the actual practice within the work field. Also, the clear and well-laid out thesis manual was considered commendable. The panel recommends the programme to consider introducing a compulsory literature review of 5 EC as preparation for the master's thesis project to further fortify the scientific underpinning of the master theses. The development of students' professional skills is organised on an individual basis, supervised by the students' mentors. Although the panel appreciated the centrality of the professional skills in the TU/e GS, its highly personal and individualised set up demands a continuous evaluation of both students' and mentors' performance.

Some minor improvements could still be made. The panel recommends the programme to connect more actively with its alumni, who could potentially be a good source for internships and job market orientation. In addition, the panel advises to keep a close eye on the students' progress and to continue evaluating the students' workload in order to guarantee that students meet the intended learning outcomes within the time set for the master's programme. The School IE is currently

suffering a high staff-to-student ratio. As a result, staff is pressed for research time. The panel has verified that the programme management is aware of this problem and that it is taking adequate measures to address the matter. Continuous vigilance in this matter is, however, necessary in order to continue guaranteeing the good connection between research and teaching that has been established for the current programme.

The panel appreciates the staff's proactive and problem-solving attitude regarding the challenges posed by the new curriculum and programme design and the increased workload in response to the increase in students since 2012. Staff members regularly meet and align their courses, and also take demands and practices of the work field into account. The panel suggests introducing an annual feedback moment regarding the full programme with students and staff, to continue improving the new curriculum. Notable improvements regarding the professionalisation and reflection skills of the staff have been recognised by the panel. The panel praises IM's dedicated staff and its innovative teaching methods to fuel student learning. Within the School IE, the panel considers IM an example of good practice in this regard.

IM benefits from a diverse student intake, which the panel considers an advantage for a programme that focuses on product design and innovation, and the challenges these pose at management level within a company or organisation. The programme also manages to successfully prepare its diverse student intake to meet the intended learning outcomes. The internationalisation programme of IM is extensive and ambitious, and functions well. A high amount of students take parts of their studies abroad, which the panel considers both desirable and praiseworthy. With a wide variety of options, a well-functioning homologation and internationalisation programme and a professional and innovative staff, IM's teaching-learning environment offers a good environment for students to achieve the intended learning outcomes.

Conclusion
The panel assesses Standard 2 as 'good'.

Standard 3: Assessment
The programme has an adequate assessment system in place.

Explanation:
The tests and assessments are valid, reliable and transparent to the students. The programme's examining board safeguards the quality of the interim and final tests administered.

Findings
The master's programme IM is part of the School IE and shares an assessment policy with the bachelor's programme IE and the master's programme OML. The assessment policy of the School IE is described in both the critical reflection and in an addendum provided to the panel. This addendum contains the examination policy as in place since 2016, describing the school's vision on quality assurance of assessment, practical tools and procedures for implementing this vision and a description of the tasks and involvement of the Board of Examiners (hereafter: BoE). It is deduced form the examination policy of the TU/e. In addition to this material, the panel studied a selection of assessment material, a selection of theses with its accompanying assessment forms, and several result lists for past examinations during the site visit. It also met with representatives of the BoE.

Board of Examiners
The BoE consists of six members in total: five staff members and an external member. They are assisted by an independent secretary. Besides the expertise of the BoE members in the different disciplines of IE, the BoE members possess also basic knowledge expertise in law, quality assurance and testing. The BoE has delegated some of their tasks to subcommittees: a committee for daily tasks and an assessment committee for quality assurance of master's and bachelor's theses have

been appointed. The BoE regularly meets with the management of the programme to discuss their findings and regularly meets with the teaching staff. During these meetings, it regularly brings up the need to secure both the engineering and science direction of the programme.

The MSc thesis assessment committee is bound to check a stratified sample of theses every semester. This system is considered a good measure by the panel to create the necessary alignment between marking practices. In December 2016, spot checks of IM's course assessments have additionally been introduced. The panel heartily supports the assessment committee's importance as a quality assurance mechanism and recommends paying attention to the time allocated to assessment committee members to perform these important tasks.

The BoE's main concern is quality assurance of the diplomas and checking for coherence of individual study paths next to its task to address individual student requests. In addition, it monitors the quality of all assessments of individual courses within the programme at procedure and content level and advise the programme management regarding the implementation of learning outcomes. The panel observed that the BoE is performing these tasks at a satisfactory level for the master's programme IM. The BoE checks the coherence of individual study paths of students. Test results are monitored and students fill in questionnaires after each course. All this information feeds to the BoE. When encountering irregularities, the BoE investigates and reports back to the programme management. The panel advises the BoE to also consider introducing spot checks by independent educationalists in order to annually screen (a selection of) individual courses, including its assessment, within the programme to further assure the quality of assessment.

The BoE aims to develop test matrices for the different programmes in the School IE, an ambition that is warmly supported by the panel. Test matrices are useful to inform both staff and students about the various types and forms of assessment within each individual course. Additionally, they could connect individual learning outcomes to specific courses and examinations, creating transparency about the various ways in which the programme's intended learning outcomes are embedded within the curriculum. An additional benefit would be that further clarity is introduced regarding the composition of grades for both students and staff members.

Quality of Assessment
The panel studied a representative selection of module and course assessments during the site visit, as listed in Appendix 6. Examinations are drafted based on the course's intended learning outcomes and discussed, reviewed and assessed by at least two lecturers; this practice is monitored by the BoE. Examinations at IM are marked by two staff members to ensure that the assessment is fair. In certain courses, students additionally peer review their fellow students' work. Students reported to the panel to be well-informed about the assessment methods in the prospective and course manuals. They consider the assessment procedures transparent and are aware of the criteria for assessment. The panel renders the assessment procedures amply implemented and developed.

Students are allowed to start with their master thesis project when they have obtained at least 80 EC. They are supervised by their mentor. Every student is assigned a thesis assessment panel consisting of three members: their mentor as first supervisor, a second supervisor – a senior member of one of the IM capacity groups that is involved in the go/no go decision and the assessment of the thesis – and a third member that acts as an assessor with a more disciplinary outlook that also safeguards the engineering aspects of the thesis project. The BoE's assessment committee performs spot checks since Spring 2016, providing an independent quality mechanism that assures alignment between and quality assurance of the master theses. This system is considered promising by the panel, yet needs to proof itself in the coming years.

In addition, the panel studied the assessment forms of the master thesis of students at IM. The assessment forms have been recently updated. A standardised assessment form is used for the evaluation of the graduation project. It is currently divided in two categories of assessment: 1. the assessment of research and analysis, and 2. professional skills. Both categories have been divided

in subcategories and some space for further justification of the assessment has been assigned to both categories. Students are assessed on both their thesis and the process resulting in the thesis. Thesis and process are separately graded, feeding into one final grade that is based for 70% on the thesis assessment and 30% on the process assessment. Supervisors are obliged to comment on both marks, and also to explain differences in the assessment of the thesis and the process. For the thesis part, students are assessed on four aspects: the scientific quality and scope, the quality of the research method, the quality of the solution and the quality of the written communication. For the process part, students are tested on five aspects: project management and planning, internal and external cooperation, academic attitude, societal awareness and oral communication. All nine aspects are rated on a scale of four judgements, ranging from 'insufficient' to 'excellent'. Three thesis aspects, namely scientific quality and scope, the quality of the research method and the quality of the solution, must be at least rated 'sufficient' for grades over 5.5, or the absolute minimum for a pass grade.

Although the assessment forms have improved over the last couple of years, the panel recommends introducing, for example, rubrics or another suitable instrument to enhance the transparency of grading and the composition of grades. Rubrics set scoring guidelines that can be used to provide consistency in evaluating student work and would therefore benefit the transparency and reliability of the grading. They spell out scoring criteria so that multiple teachers would arrive at the same score or grade. As examiners fill in the same form and determine grades together in conversation, students have no insight into the discussion between their examiners. The panel recommends filling in separate forms for further transparency. In addition, it is currently difficult to tell what 'sufficient' entails. Whereas three out of nine aspects need to be assessed 'sufficient' for a pass grade, it is unclear what happens when other aspects fail to meet the pass mark based on the assessment forms.

Considerations
The panel established that the master's programme IM has a satisfactory assessment system. The quality of assessment and achieved learning outcomes is safeguarded. Examinations are drafted with the involvement of two members of staff, and marked by two independent examiners. The quality of assessment of the master thesis is even assured by the involvement of three members of staff: two supervisors and an independent assessor that assures the engineering aspect and disciplinary focus of the thesis project.

The BoE's aims to develop test matrices for the different programmes in the school, an ambition warmly supported by the panel. Some other improvement could be considered. The panel recommends to redesign the thesis assessment forms for further qualitative feedback and additional transparency into the composition of grades. Furthermore, separate forms for all examiners would fuel further transparency into the assessment process. The panel advises the BoE to also consider introducing spot checks by independent educationalists in order to annually screen (a selection of) individual courses in its totality – including its course load, programme, assessment methods, evaluations – to further assure the quality of the programme.

The BoE of the School IE functions within the constraints of the law. It regularly convenes with management and informs both students and staff about assessment procedures and assures the quality of assessment throughout the programme. The BoE's assessment committee is also bound to perform stratified spot checks of the master theses every semester. In December 2016, spot checks of course assessments had also been introduced. This is appreciated by the panel and deemed a good additional and fully independent control mechanism to safeguard the quality of assessment by the panel, yet the results of this measure could not yet be ascertained. The panel recommends paying attention to the time allocated to assessment committee members to perform these important tasks. Therefore, the panel concluded that the BoE at IM seems to be in control and now has various instruments in place to guarantee a fair assessment of all assessments, including the master thesis project.

Conclusion
The panel assesses Standard 3 as 'satisfactory'.

Standard 4: Achieved learning outcomes
The programme demonstrates that the intended learning outcomes are achieved.

Explanation:
The level achieved is demonstrated by interim and final tests, final projects and the performance of graduates in actual practice or in post-graduate programmes.

Findings
Prior to the site visit, the assessment panel studied a selection of fifteen master theses in order to establish the level achieved by graduates. Being the final element of the programme, and the only element to cover all intended learning outcomes, the thesis is best suited to determine the level achieved by students. Students conduct a project that should not only result in a (data) analysis, but also in a theoretical or applied design to address the problems identified in the analysis. The design orientation of the master thesis is therefore ensured, which is also assessed by the third assessor with a disciplinary focus. An overview of the thesis selection is included in Appendix 6.

The panel confirms that all theses are of at least satisfactory quality, and in individual cases very good. All theses were graded appropriately, although the panel would have assessed some projects slightly lower or higher (0,5-1 points). The topics of research are appropriate and often case-oriented, often using interview schemes to support a data analysis. The evaluated studies benefited from an embedment in scientific literature, although the theoretical framework and survey of literature could be more extensive. The panel considered the average level of achievement concurring with what could be expected at master's level. Based on the information provided for the complete cohorts 2014-2015 and 2015-2016, approximately 23% of all IM students scored a grade of 8,5 or higher and approximately 33% a grade 7 or lower. The panel had some remarks regarding the research design in individual cases, but considered all studied theses an adequate demonstration of the students' achievement of the intended learning outcomes.

During the site visit, it became clear that all thesis projects are executed within the mentor's professional and research networks, all of which are of good reputation. The mentor vets the student's research question, helps the student to find a suitable company or organisation from the mentor's network. Consequently, the master thesis is always related to the mentor's research, to the capacity group's research interests and to the mentor's professional network. This results in close connections between research and the master's thesis project. Teaching staff indicated that this collaborative attitude worked well, as it also ensured that students worked within their particular expertise and interests that eventually also fed into their own research. Students reported back to the panel to appreciate the opportunity to work within both a research group and a company or service organisation, and they felt embedded and appreciated.

The level achieved by graduates is also demonstrated by their performance upon graduation. Alumni of the master's programme should easily enter the job market based on their skills and knowledge, which was confirmed by the alumni during the site visit. They considered themselves sufficiently prepared for the labour market and valued for their profile and skills. The number of graduates that pursue an academic career is limited. Most students are interested in a job in manufacturing and service industry. Nonetheless these observations, the alumni indicated to feel adequately prepared for a potential academic career and knew some former students that indeed had embarked upon a career in academia. The alumni of the IM master's programme emphasised their creativity. They considered themselves pragmatic in their approach: searching for solutions and opportunities for change, rather than starting with a data set.

Alumni of IM emphasised not feeling actively engaged with their former School, to the panel's surprise. Eindhoven, both as a city and with its university's reputation, is in its eyes in an excellent position to involve their alumni within their programmes, for example by inviting them for additional guest lectures and network events. Based on the critical reflection, the School IE's alumni

organisation Alumnia seems part of the programmes' fabric. The panel therefore recommends the programme to further develop their alumni engagement, as discussed above under standard 2.

Considerations
The panel ascertained that graduates of the master's programme IM achieved the intended learning outcomes at a satisfying level, based on the quality of their theses. The evaluated studies benefited from an embedment in scientific literature, although the theoretical framework and survey of literature could be more extensive. The level of the master's thesis projects concurs with the level that is expected from an academic master's programme. All theses were adequately graded. Master graduates easily enter the job market, on which their profile and skills are valued. Although the School IE has an established alumni organisation in place, the panel advises the programme to further develop their alumni engagement.

Conclusion
The panel assesses Standard 4 as 'satisfactory'.

GENERAL CONCLUSION

The panel assessed standard 1, the intended learning outcomes, as satisfactory. The intended learning outcomes have been specified in terms of content, level and orientation; they meet international requirements. Nonetheless, these could be further concretised to inform the curriculum and direct student learning.

Standard 2, the teaching-learning environment, was assessed as good. The panel established that the curriculum, staff and programme-specific services and facilities enable the incoming students to achieve the intended learning outcomes, with certain room for improvement with regards to the involvement of alumni, the organisation of formal feedback on the programme and curriculum design and the student-to-staff ratio. The panel found in particular the programme's international ambitions and the way they were implemented commendable and an example of good practice within the field. It also highly appreciated the programme's experiments with innovative teaching methods.

The panel assessed standard 3, assessment system, as satisfactory. The programme has an adequate assessment policy, and the Board of Examiners is performing its legally mandated tasks. The assessment forms currently used for the master's thesis project could be improved upon, which the panel therefore recommends.

Standard 4, achieved learning outcomes, was assessed as satisfactory. The panel ascertained that graduates of the master's programme IM achieved the intended learning outcomes at a satisfying level and at the appropriate level for an academic master's programme. All theses were adequately graded. Master graduates enter relatively easily the job market, in which their profile and skills are valued.

Conclusion

The panel assesses the *master's programme Innovation Management* as 'satisfactory'.

APPENDICES

APPENDIX 1: CURRICULA VITAE OF THE MEMBERS OF THE ASSESSMENT PANEL

Professor Rob Van der Heijden (chair) graduated in 1981 from Eindhoven University of Technology as a building engineer. He received his PhD in Building Engineering from the same university in 1986. From 1987-1993 he worked as (Associate) Professor at the Faculty of Civil Engineering of TU Delft. In 1994, he was appointed Full Professor in Transport and Logistics at TU Delft. Radboud University Nijmegen offered him a position as Full Professor in Urban and Regional Planning in 2001. Between 2008-2010, he was Director of Research at the Institute of Management and Vice-Dean of Research at the Nijmegen School of Management (NSM). Professor Van der Heijden was Dean of the Nijmegen School of Management from 2011-2016. Since June 2016, he is Professor in Innovate Planning Methods within the NSM. His research is in the fields of spatial planning, decision making and governance with a special focus on issues of transport, logistics and infrastructure development.

Erik Demeulemeester is Full Professor at the Faculty of Economics and Business (since 2001) and Head of the Research Center for Operations Management at KU Leuven in Belgium. Additionally, he is Chair of the Department of Decision Sciences and Management Informatics. Erik Demeulemeester received a degree as commercial engineer in Management Informatics in 1987, a Master of Business Administration in 1988 and a PhD in 1992, all from KU Leuven. Professor Demeulemeester is a member of the editorial board of the *European Journal of Operational Research*, the *Journal of Scheduling, Computers and Operations Research* and the *European Journal of Industrial Engineering*. He is a jury member for the EURO Excellence in Practice Award (EEPA), which will be awarded at the EURO-k conferences in 2016, 2018 and 2019. His main research interests are project scheduling and health care planning, both feeding into his current teaching practice and his numerous publications.

Professor Harrie Eijkelhof has specialised knowledge of didactics and teaching methods in science education. Until his retirement in 2014, he was Director of the Freudenthal Institute for Science and Mathematics Education at the Faculty of Science at Utrecht University (2011-2014). Previously, he was Professor of Physics Education at the Faculty of Physics and Astronomy at the same institution (1997-2011). Professor Eijkelhof has ample experience in teaching, educational models, didactics, assessment and professional development of executives in university education. From 2005 to 2010, he was Vice-Dean of undergraduate studies at the Faculty of Science, Chairman of the Board of Studies of the Undergraduate School, member of the examination board of Liberal Arts and Sciences and a member of the Advisory Board of Education at Utrecht University.

Professor Jan Kratzer is Chair of Entrepreneurship and Innovation Management and Managing Director of Center for Entrepreneurship at Berlin Institute of Technology, Germany. In the School for Business and Economy, he holds the function for Vice-Dean for Research and Internationalisation. In addition, he is editor of *Creativity and Innovation Management* (CIM) and member of the editorial board of the *Journal of Product Innovation Management*. Within the European Institute of Innovation and Technology (EIT), professor Kratzer was involved in designing the educational programs. His research mainly focuses on factors that drive entrepreneurial activities towards success: he studies networks of entrepreneurs, social networks and creativity, entrepreneurial education, social entrepreneurship, online social networks and entrepreneurial opportunities, among others. His work is widely published in many leading international scientific journals.

Sofie Vreriks BSc (student member) is in her second year of her master Industrial Engineering and Management at the University of Twente. From 2010 – 2011, she studied Communication Science before moving to Industrial Engineering and Management, also at Twente. Vreriks received her bachelor's degree in 2014, with a minor in International Business and Exploration. After finishing her undergraduate degree, she worked for a year as an intern and a project coordinator for Royal Philips in Amsterdam.

APPENDIX 2: DOMAIN-SPECIFIC FRAMEWORK OF REFERENCE

Domain-Specific Frame of Reference Industrial Engineering and Systems Engineering
(As confirmed in Utrecht on 10 March 2016)

This document has been written as a short summary of views on the field of Industrial Engineering and Systems Engineering (IE&SE). These views have been gathered from organizations that focus on the professional development and application of the field http://esd.mit.edu/;http://www.abet.org/). In addition, SE engineers (http://www.iienet.org; http://msom.society.informs.org; http://www.informs.org; http://www.incose.org) and leading academic programs in the field (http://ieor.berkeley.edu/; http://www.isye.gatech.edu/; http://www.cesun.org; http://www.stanford.edu/dept/MSandE/; http://www.epp.cmu.edu/; http://esd.mit.edu/; http://www.seor.gmu.edu/). A few excerpts from these texts are included in the separate text box.

Although there are some clearly common elements in these descriptions, we observe that the various different emphases of these organizations' IE&SE programs have necessitated each of them to formulate their own view of what the field of Industrial Engineering and Systems Engineering represents in education, application, and research. The same also holds for the IE&SE programs at UG, TUD, TUe, and UT. This document gathers the overarching elements of these programs, but we emphasize that each of these IE&SE programs has unique elements that will be highlighted in the self-assessments.

1. Common elements of the field of IE&SE
These common elements concern: (a) the common basis, (b) the focus: (re-)design, implementation, installation, and improvement of products, processes and systems, (c) broadly applied in private and public domains and within and between organisations, (d) the application of quantitative methods (and combination with qualitative methods), and (e) complex problem solving with a scientific and a pragmatic multidisciplinary approach.

(a) The common basis
Industrial Engineering (IE) and Systems Engineering (SE) are interrelated.[1] IE is concerned with the design, improvement, implementation and installation of integrated systems of people, information, materials, equipment and energy. It focuses on the analysis, design and control of (innovative) processes, products and systems in an industrial and/or societal environment, both at the level of individual organisations and supply networks as well as strategic issues. It involves the use of new processes, materials and production- and manufacturing techniques in innovative ways. SE mainly focuses on inter-organisational questions that involve the use of technology and the interests of multiple stakeholders, typically linking public and private organisations. As a consequence the common basis of IE en SE draws upon specialised knowledge and skills in the mathematical, physical, chemical and social sciences together with the principles and methods of engineering analysis and design in order to specify, predict, and evaluate the results to be obtained from the systems involved.

(b) The focus: analysis, design, implementation, and performance improvement of processes, critical infrastructures, and systems
IE&SE is concerned with the design and improvement of operational and/or strategic processes and integrated systems. These processes or systems provide products or services to customers or to the society at large. As such both private and public organisations are concerned. The design and improvement of products, processes and systems considers multiple goals and the availability of limited resources, such as time, money, materials, energy and other resources. Several organizations and multiple stakeholders may be involved (supply chains, alliances, public-private partnerships) and governance structures can be part of design and improvement initiatives. The scope of design thus

[1] "Industrial Engineering" refers to the programmes at TU/e and UT, while the term "Systems Engineering" better fits most programmes at TUD.

may include supply chain networks, production and manufacturing techniques, products, control of systems, implementation, installation and validation. The multidisciplinary, integrated design approach including the design context distinguishes IE and SE's from specialized engineering disciplines. In summary, IE's and SE's may be considered Productivity and Efficiency Professionals.

(c) Broadly applied, both in private and public domains and both within and between organizations

IE&SE is used in a variety of fields. It applies along all steps in the product life cycle, from research and development over design, manufacturing, distribution and disposal. And it applies in all phases of the value chain. Whereas initial applications were mainly limited to industrial settings, we now witness more and more applications in the service industry. Its principles apply as well in all fields of the private as in the public sector. Today there is a fast growth of applications in banking, healthcare, transportation, and the like.

Therefore the term "industrial" can be misleading; this does not mean just manufacturing. It encompasses service industries as well. It has long been known that industrial engineers have the technical training to make improvements in a manufacturing setting. However, many of the same techniques can be used to evaluate and improve productivity and quality in a wide variety of service industries, as well as in the public sector. The term "Systems Engineering" emphasizes this broader scope for design, improvement, and problem solving.

(d) The application of quantitative and qualitative methods

IE&SE is a field of engineering and one important element of its approach to the design and improvement of products, processes and systems is the use of data analytics and quantitative modelling methods. These are derived from fields such as operations research, management science, mathematics, natural sciences, economics, data analysis and statistics, information systems, game theory (gaming, simulation and Q-methods), engineering and social science methods such as interviews and questionnaires.

(e) Complex problem solving with a scientific and pragmatic multidisciplinary approach

Complex problems where value systems may clash and the status of knowledge claims may be disputed are central to IE&SE. In order to be able to solve these kinds of problems, it is necessary to synthesize knowledge from different disciplines (e.g., engineering, natural sciences, (institutional) economics, mathematics, organizational behaviour, law, psychology, although not all disciplines are equally important in all problem domains). IE&SE draws upon specialized knowledge and (analytical) skills in the mathematical, physical, and social sciences, together with the principles and methods of engineering analysis and design. Unlike traditional disciplines in engineering, IE&SE addresses the role of human decision-makers and other stakeholders as key contributors to the inherent complexity of systems. The programmes offer the relevant knowledge and skills from different disciplines and provide a framework for the application and integration of this knowledge in analysing a problem situation and in designing and implementing solutions. In brief, IE's and SE's might support (scientific) decision making.

Besides scientific IE&SE people also ought to be pragmatic people. They work to understand and resolve real problems from society and hence - as stated above - need to combine the knowledge and experience from many disciplines to develop project and process-management expertise and communication skills. They choose their method so as to fit the problem, which means that they combine the quantitative and problem-solving approach of engineers with research methods and qualitative insights from the social sciences.

2. Generic competences

Taking into account the before mentioned common elements of the field generic competencies for industrial and systems engineering are listed below:

- Sufficient understanding of science, technology and technological innovation;
- Keen analytic mind-set combined with a drive to synthesize towards a solution;

- Competent in translating complex issues in workable models and design and execute appropriate research programmes;
- Adequate mathematics skills for modelling and executing research activities;
- Able to conduct standard experiments, tests and measurements, and to analyse and interpret and apply the results in order to improve products, processes and systems;
- Able to (re)design products, processes and systems in an IE&SE context;
- Adequate understanding and competences in a number of technical, economic and social disciplines to underpin research programmes;
- An adequate understanding of the drivers of socio-,economic and political organizations in society;
- Able to assess the impact of IE&SE products, processes and systems in a business, societal and global context;
- Able to organize and drive for efficiency and effectiveness;
- Resourcefulness and creative problem solving;
- Excellent communication, listening, and negotiation skills;
- Ability to adapt to many environments, interact with a diverse group of individuals and understand the roles of various stakeholders in the processes;
- Experience in working in an interdisciplinary and international environment;
- Able to identify the arising ethical dilemma and to reflect on this dilemmas.

3. BSc and MSc levels

The specific blend of competencies varies per programme and is laid down more specifically in the final qualifications of each programme. Although the emphasis varies among the programmes, there is a differentiation between the BSc and MSc levels regarding to

- Complexity of the problem situations (in terms of technical and/or stakeholder complexity and/or the number of disciplines involved);
- The amount of information necessary, known, and available from the practical problem situation;
- The level of autonomy.

Bachelors receive a sound general education in basic fields of IE&SE, like Natural Sciences, technology, engineering, optimisation, production- and process techniques, engineering economy, business economy, organisational theory, social sciences, etc...) However, specific choices in these basic fields, varies per programme. They should be able to continue studies on a more in depth and specialised Master's track or they may fill appropriate positions in business.

Master programs in IE&SE generally offer different fields of study in which students can specialise. Examples of such fields are operations management, operations research and management science, CIT, product design and logistics, policy analysis, man-machine systems, performance analysis, supply chain management, process- or production techniques, innovation processes, control engineering, etc.

Whereas bachelors are mainly involved in analysis (as the initial step in the design cycle), Masters typically deal with design questions. Above that they should also be exposed to research questions. Masters should be able to formulate and carry out independent research projects.

The IE&SE Bachelor programs provide an excellent basis for one of the IE & SE Master programs, but students in IE&SE Master programs also can have various undergraduate backgrounds in engineering and other quantitative fields. Graduates of a Master's programme will typically start their career as engineers, project or planning managers, functional managers, policy analysts/advisers, engineering consultants and the like. But they may as well start an academic track through further involvement in research (e.g. PhD and academic positions). They should be able to move later on to managerial positions (e.g. as CTO). Some may prefer to become private entrepreneurs.

Excerpts from: http://www.iienet.org/Details.aspx?id=282

Institute of Industrial Engineers (IIE) **Definition of Industrial Engineering:**

'IE is concerned with the design, improvement and installation of integrated systems of people, materials, information, equipment and energy. It draws upon specialised knowledge and skill in mathematical, physical and social sciences together with the principles and methods of engineering analysis and design, to specify, predict and evaluate the results to be obtained from such systems'

Excerpts from http://www.stanford.edu/dept/MSandE/about/MSandE-5yr.pdf

Stanford Engineering established the Department of Management Science and Engineering five years ago with a logic and a purpose: engineers know how to analyze and solve problems and they thoroughly understand technology. With this quantitative background and additional training, for example in social sciences or finance, engineers should therefore be leaders in management and public policy.

The department's eight research areas [are]: organizations, technology management and entrepreneurship; production and operations management; decision analysis and risk analysis; economics and finance; optimization and the analytical tools of systems analysis; probability and stochastic systems; information science and technology; and strategy and policy. MS&E also includes several centres and programs such as the Energy Modelling Forum and the Centre for Work, Technology and Organization. In addition, it hosts the Stanford Technology Ventures Program. The department's strengths are also manifest in the talents of students and alums who work in investment banking, management consulting, and other fields that have not been closely associated with engineering in the past. These fields will be in the future because a deep understanding of technology has become critical to their operations. "For example, a growing number of people address finance problems using methods that have been traditionally associated with engineering systems analysis," says Paté-Cornell, referring to the fast-growing specialty of financial engineering. Paté-Cornell's hope is that more engineers will also join the ranks of government and use their skills to shape and implement policies.

MS&E students gain the training that they need to be leaders in finance, industry, policy, or other specialties by completing a core engineering curriculum, followed by a concentration in an area such as finance, operations research, production, or public policy.

Excerpts from www.isye.gatech.edu

Georgia Tech: Industrial engineering (IE), operations research (OR), and systems engineering (SE) are fields of study intended for individuals who are interested in analyzing and formulating abstract models of complex systems with the intention of improving system performance. Unlike traditional disciplines in engineering and the mathematical sciences, the fields address the role of the human decision-maker as key contributor to the inherent complexity of systems and primary benefactor of the analyses. In short, as practitioners and researchers in IE/OR/SE, we consider ourselves to be technical problem solvers. We are typically motivated by problems arising in virtually any setting where outcomes are influenced by often complicated and uncertain interactions, involving a variety of attributes that affect system performance. Against this backdrop, students have historically been attracted to our academic programmes with a variety of career objectives and from a host of disciplines and academic interests.

APPENDIX 3: INTENDED LEARNING OUTCOMES

Domain-specific learning outcomes of IE MSc IM
Graduates of the IE MSc IM program are engineers who:

D1. Have state-of-the art scientific knowledge of the design, behavior, planning and enhancing performance of innovation processes in technology-intensive and knowledge-intensive organizations. For this purpose graduates have multidisciplinary knowledge and insights stemming from the following disciplines: organization sciences, marketing sciences and innovation sciences, information systems, work and organizational psychology, and engineering economics.
D2. Have the research skills needed to independently conduct studies meeting academic standards in the domain of Innovation Management.
D3. Are well-capable of modeling and (re)designing a complex business process, based on the results of a study, including specifications and required information.

1.2.5 General scientific learning outcomes of IE MSc IM
The graduates of the IE MSc IM have an academic attitude, design skills, and a set of communicative and social skills. This makes them capable of:

G4. Reflecting and creatively solving problems. They understand their own (and the organizational) learning process and have skills in this domain.
G5. Communicating clearly and unambiguously both in industry and in academia, with non-specialists and specialists in the domain. Therefore, they have adequate social and communication skills.
G6. Operating independently as well as in (multidisciplinary) teams.
G7. Being aware of the social context they work in and of the social impact of their work.

1.2.6 Academic criteria for IE MSc IM
Within the Dutch Qualification Framework, the IE MSc IM program is a WO (Wetenschappelijk Onderwijs, Higher Education) master's degree program.
In the following, we compare the learning outcomes of the IE MSc IM program with the Academic Criteria of the ACQA framework. From this we conclude that the IE MSc IM program has the required academic orientation.

Ad 1. Scientific disciplines: The IE MSc IM graduates are engineers with state-of-the art scientific knowledge of the design, behavior, planning, and enhancing performance of innovation processes. For this purpose graduates have multidisciplinary knowledge, particularly organizational, technical, and economical.
Ad 2. Doing research: The IE MSc IM graduates have research skills to independently conduct studies meeting academic standards.
Ad 3. Designing: The IE MSc IM graduates are well-capable of modeling and (re)designing a complex business process, based on the results of a study, including specifications and required information.
Ad 4. Scientific approach: The IE MSc IM graduates understand their own (and the organizational) learning process and have skills in this domain.
Ad 5. Basic intellectual skills: The IE MSc IM graduates are able to reflect and creatively solve problems.
Ad 6. Co-operating and communicating: The IE MSc IM graduates are able to communicate clearly and unambiguously both in industry and in academia, with non-specialists and specialists in the domain. Therefore, they have adequate social and communication skills. Graduates are also capable of operating independently as well as in (multidisciplinary) teams.
Ad 7. Temporal and social context: The IE MSc IM graduates are aware of the social context they work in and of the social impact of their work.

APPENDIX 4: OVERVIEW OF THE CURRICULUM

Master's programme Innovation Management

IE MSc IM	Q 1.1	Q 1.2	Q 1.3	Q 1. 4
Year 1	1ZM16 Management of Product Development	Track 1 or 2 Elective	1ZM11 Marketing & Innovation	1ZM100 Design Project for business and product creation Track 1 or 2
	1JM06 Human Aspects of Innovation	Track 1 or 2 Elective	1BM56 Business Intelligence	Track 1 or 2 Elective
	1ZM31 Multivariate Statistics	Track 1 or 2 Elective	1ZM50 Design Science Methodology	Track 1 or 2 Elective
Year 2	International experience and/or electives (such as literature review): 30 credits		Research proposal and Master Thesis Project: 30 credits	

APPENDIX 5: PROGRAMME OF THE SITE VISIT

Wednesday 18 January			
8.15	8.30	Arrival panel	
8.30	9.30	Panel preparations	
9.30	10.30	Panel 0: Educational Management	Dr. Gunter J.T. Bombaerts, coordinator USE Dr.ir.Eric van der Geer-Rutten-Rijswijk, educational director Dr. Jeroen J.L. Schepers, program manager MSc IM Prof.dr.ir. Geert.Jan.J.A.N. van Houtum, substitute for dr. Tarkan Tan, program manager MSc OML Dr.Marjan C.W. Vrijnsen-de-Corte, adjunct educational director
10.30	11.00	Discussion panel (including break)	
11.00	11.30	Panel 1: Students BSc IE	Emma de Bruijn (first year) Martijn Buijvoets (second year) Jan Kleinlugtenbeld (third year) Jordy Klei (first year) Marliek Raadsheer (second year) Alexander Schoonderwoerd (second year) Tara Veldhuizen (third year)
11.30	12.00	Panel 2: Lecturers BSc IE (Major Courses	Dr.ir. Emiel E.M. van Berkum, department W&I Dr.ir. Nico P. Dellaert, OPAC Prof.Dr. Eva Demerouti, HPM Dr. Pieter M.E. van Gorp, IS
12.00	13.30	Discussion panel	
13.30	14.00	Panel 3: Students MSc OML	Renée Albers (first year) Jochem Kamst (second year) Justin Heel (second year) Tamara Schouten (first year)
14.00	14.30	Panel 4: Lecturers MS OML (core courses)	Dr. Zümbül Atan, OPAC Dr.ir. Remco M. Dijkman, IS Prof.dr.ir. Paul W.P.J. Grefen, IS Dr. Wido G.M. Oerlemans, HPM Prof.dr. Tom van Woensel, OPAC
14.30	14.45	Break	
14.45	15.30	Additional meeting: discussion BSc theses	Dr. Myriam.M.A.H.Cloodt, Quality Control Committee theses (BSc and MSc) Dr.ir. Eric van der Geer-Rutten-Rijswijk, educational director Dr. Prof.dr. Ton G. de Kok, chair examination board Dr. Allard Kastelein, Item, BSc examiner Dr. ir. Simme Douwe Flapper, BSc examiner Prof.dr. Tom van Woensel, substitute for S.Dabia who has left the Tu/e and who was BSc examiner
15.30	16.00	Panel 5: Students MSc IM	Sophie Arends (first year) Maaike Mennen (second year) Wouter Boersma (second year) Marieke Kil (first year)
16.00	16.30	Panel 6: Lecturers MSc IM (core courses)	Dr. Sarah E.C. Gelper, ITEM Dr. Josette M.P. Gevers, HPM Dr. ir. Bob Walrave, ITEM Dr.ir.arch. Isabelle M.M.J. Reymen, ITEM Dr. Anna M. Wilbik, IS

16.30	17.00	Discussion panel	
17.00	17.45	Panel 7: Alumni	Stan van Klink (BSc IE, no master) Pascal Mertens (MSc OML) Joost Vandewal (MSc IM) Floor Wiersma (BSc IE, started with master) Gillis van de Zande (MSc IM)

Thursday 19 January			
8.15	8.30	Arrival panel	
8.30	9.15	Panel preparations/office hour	
9.15	10.00	Panel 8: Program Committee	Dr. Sonja Rispens, HPM Dr.ir. Irene T.P. Vanderfeesten (chair), IS Dr. Luuk P. Veelenturf, OPAC Ward Beekmans (BSc-student) Zosha Droog (MSc-student)
10.00	10.15	Discussion panel	
10.15	11.15	Panel 9: Board of Examiners	Dr. Pascale M. Le Blanc, HPM Dr. Myriam M.A.H. Cloodt, ITEM Prof.dr. Ton G. de Kok (chair), OPAC Ing. Baukje Osinga-Kuipers (study advisor) Prof.dr.ir. Jos J. Trienekens, IS Dr.ing. Joost P.M. Wouters, ITEM
11.15	13.30	Preparation final interview	
13.30	14.30	Second interview Management	Dr.ir. Eric van der Geer-Rutten-Rijswijk, educational director Dr.Marjan C.W. Vrijnsen-de-Corte, adjunct educational director Prof.dr. Ingrid E.J. Heynderickx, dean Dr. Jeroen J.L. Schepers, program manager MSc IM Prof.dr.ir. Geert.Jan.J.A.N. van Houtum, substitute for Dr. Tarkan Tan program manager MSc OML
14.30	17.00	Discussion panel regarding preliminary findings and consultation with prof.dr.ir. R.E.C.M van der Heijden by telephone	

Monday 20 February			
15.15	16.30	Arrival panel and preparation	
16.30	17.30	Additional meeting: quality control and assessment procedures, skills development and assessment	Dr.Gunter J.T. Bombaerts, coordinator USE Dr.ir. Michel. W. van der Borgh, Item Dr.ir. Nico P. Dellaert, OPAC Dr.ir. Eric van der Geer-Rutten-Rijswijk, educational director Prof.dr. Ton G. de Kok (chair ex.cie), OPAC Ing. Baukje Osinga-Kuipers (study advisor) Dr. Thijs J.G. Peeters, ITEM Dr.Jeroen J.L. Schepers, program manager MSc IM Dr Marjan C.W. Vrijnsen-de-Corte, adjunct educational director
17.30	18.00	Panel discussion	
18.00	19.00	Final interview Management	Dr.ir. Eric van der Geer-Rutten-Rijswijk, educational director Prof.dr. Ingrid E.J. Heynderickx, dean Prof.dr.ir. Geert Jan van Houtum,vervanger. prog.man. MSc OML

			Prof.dr. Ton G. de Kok, chair ex.cie, OPAC Prof.dr. A.M.C. Lex Lemmens, dean Bachelor College Dr.Jeroen J.L. Schepers, program manager MSc IM Dr Marjan C.W. Vrijnsen-de-Corte, adjunct educational director
19.00	19.30	Deliberation panel, consultation, formulation preliminary findings	
19.30	19.45	Presentation preliminary findings (open to all)	

APPENDIX 6: THESES AND DOCUMENTS STUDIED BY THE PANEL

Prior to the site visit, the panel studied the theses of the students with the following student numbers:

Master's programme Innovation Management (IM)

727504	655432	661383
677511	727897	719719
871624	679523	784443
738277	787880	662166
862675	760270	640952

During the site visit, the panel studied, among other things, the following documents (partly as hard copies, partly via the institute's electronic learning environment):

Course materials (including assessment sheets, model answers, literature and course syllabi)

MSc IM:
1BM56 Business intelligence
1JM06 Human aspects of innovation
1ZM31 Multivariate statistics
1ZM50 Design science methodology
1ZM11 Marketing and innovation
1ZM16 Management of product development
1ZM65 System dynamics
1ZM110 Design project for managing innovation processes

Additional documents
Peer review lists ITEM, IS, HPM and OPAC
Graduate School Master Thesis Manuel Industrial Engineering
Study guide Bachelor End Project (18EPO)
Examination Policy School of Industrial Engineering (Version 2016)
Annual report Examination Board 2014-2015
Minutes Examination Board 2015-2016
Minutes Programme Board 2014-2015 and 2015-2016
Certificaat Technology Entrepreneurship MSc 2014.pdf
Curriculum Enquête 1e jaar TBdk tussenstand 2015-2016.pdf
Curriculum Enquête 2e jaar TBdk tussenstand 2015-2016.pdf
Curriculum Enquête 3e jaar TBdk tussenstand 2015-2016.pdf
International Experience 2015-2016
Jaarverslag internationale toelating 2015-2016-def.pdf
MSc IM Course description.docx
MSc OML Course description.docx
Overzicht Beoordelingen afstuederen BSc IE MSc IM, MSc OML.xlsx
TUe Intake and Enrollment 2016.pdf
Update Student Staff Ratio 2016.docx
Professional Skills in the Bachelor program Industrial Engineering.pdf
Memo vervolgbezoek visitatie IE 20 februari 2017.pdf

Index USB Stick Assessement 2016:
000_Index_File.docx

000_Index_File.pdf
000_Read_Me_First.pdf
000_Self_Assessment_School_IE_2016.pdf
000_Self_Assessment_School_IE_2016_PRINT.pdf
Ref_001_BSc_IE_Admission_2015-2016_en.pdf
Ref_002_BSc_IE_Annual_Report_2013-2014_en.pdf
Ref_003_BSc_IE_Annual_Report_2014-2015_en.pdf
Ref_004_BSc_IE_Awards_for_Students_and_Rankings_2010-2016_ennl.pdf
Ref_005_BSc_IE_Bachelor_College_Description_en.pdf
Ref_006_BSc_IE_Bachelor_Thesis_Assessment_Form_2015-2016_en.pdf
Ref_007_BSc_IE_Bachelor_Thesis_Description_nl.pdf
Ref_008_BSc_IE_Bachelor_Thesis_Study_Guide_en.pdf
Ref_009_BSc_IE_Basic_Courses_Assessments_2015-2016_en.pdf
Ref_010_BSc_IE_Basic_Courses_List_2015-2016_en.pdf
Ref_011_BSc_IE_Basic_Courses_Professional_Skills_2015-2016_nl.pdf
Ref_012_BSc_IE_Basic_Courses_Professional_Skills_Matrix_2015-2016_Enlarged_en.docx
Ref_013_BSc_IE_Basic_Courses_Professional_Skills_Matrix_2015-2016_Enlarged_nl.pdf
Ref_014_BSc_IE_Basic_Courses_Professional_Skills_Matrix_2016-2017_Enlarged_nl.pdf
Ref_015_BSc_IE_Basic_Courses_Professional_Skills_Matrix_2016-2017_Summary_en.pdf
Ref_016_BSc_IE_BSA_Study_Advice_VWO-Intake_2009-2015_nl.pdf
Ref_017_BSc_IE_Certificate_Technology_Entrepreneurship_2015-2016_en.pdf
Ref_018_BSc_IE_Coherent_Elective_Packages_2015-2016_ennl.pdf
Ref_019_BSc_IE_Coherent_Elective_Packages_2016-2017 ennl.pdf
Ref_020_BSc_IE_Declaration_TUe_Code_of_Scientific_Conduct_Bachelor's_Final_Project_2016_en.pdf
Ref_021_BSc_IE_Design_Based_Learning_Description_en.pdf
Ref_022_BSc_IE_Elective_Package_Advanced_Information_Systems_for_IE_en.pdf
Ref_023_BSc_IE_Elective_Package_Advanced_Operations_Management_en.pdf
Ref_024_BSc_IE_Elective_Package_Business_Economics_en.pdf
Ref_025_BSc_IE_Elective_Package_Healthcare_Management_en.pdf
Ref_026_BSc_IE_Elective_Package_Introduction_Quick_Scan_Internship_for_IE_en.pdf
Ref_027_BSc_IE_Elective_Package_Introduction_Quick_Scan_Internship_for_IE_nl.pdf
Ref_028_BSc_IE_Elective_Package_W_OI_psy_IE_en.pdf
Ref_029_BSc_IE_Graduates_and_Bachelor_Thesis_Report_Titles_Last_Three_Years_ennl.pdf
Ref_030_BSc_IE_Honors_Academy_en.pdf
Ref_031_BSc_IE_Kick-Off_ Meeting_2016-2017_nl.pdf
Ref_032_BSc_IE_Learning_Outcomes_Versus_DSFR_Generic_Competences_en.pdf
Ref_033_BSc_IE_Learning_Outcomes_Versus_Major_Courses.pdf
Ref_034_BSc_IE_List_of_Electives_2015-2016_en.pdf
Ref_035_BSc_IE_Major_IE_2016-2017_Brochure_nl.pdf
Ref_036_BSc_IE_Major_IE_Core_Courses_Roster_and_Description_2015-2016_nl.pdf
Ref_037_BSc_IE_Major_IE_Description_2016-2017_nl.pdf
Ref_038_BSc_IE_Major_IE_List_of_Courses_2015-2016_ennl.pdf
Ref_039_BSc_IE_Major_IE_Program_2016-2017_en.pdf
Ref_040_BSc_IE_MSc_IM_MSc_OML_2011-2012_old style_nl.xls
Ref_041_BSc_IE_MSc_IM_MSc_OML_Exam_Regulations_2014-2015.pdf
Ref_042_BSc_IE_MSc_IM_MSc_OML_International_Students_2010-2014_en.pdf
Ref_043_BSc_IE_MSc_IM_MSc_OML_Mean_Contact_Hours_2015-2016_en.pdf
Ref_044_BSc_IE_MSc_IM_MSc_OML_Overview_Curricula_2015-2016_en.xlsx
Ref_045_BSc_IE_MSc_IM_MSc_OML_Students'_Awards_for_Teaching_Staff_2007-2015_ennl.pdf
Ref_046_BSc_IE_Program_Major_IE_Student_Cohorts_2012-2013_&_2013-2014.nl.pdf
Ref_047_BSc_IE_Program_Major_IE_Student_Cohorts_2014-2015_&_2015-2016_nl.pdf
Ref_048_BSc_IE_Study_Advices_2015_2016_nl.pdf
Ref_049_BSc_IE_Study_Guide_Bachelor_Thesis_2015-2016_en.pdf
Ref_050_BSc_IE_Study_Guide_Bachelor_Thesis_2015-2016_nl.pdf

Ref_051_BSc_IE_Study_Guide_Bachelor_Thesis_2016-2017_en.pdf
Ref_052_BSc_IE_Study_Yields_1CH0_data_All_Years_Untill_2014-2015_nl.xlsx
Ref_053_BSc_IE_Study_Yields_OWI-Data_All_Years_Untill_2014-2015_ennl.pdf
Ref_054_BSc_IE_MSc_IM_MSc_OML_Supervisor_Statements_Thesis_Project_Last_Three_Years_en nl.pdf
Ref_055_BSc_IE_Time_Spent_Last_Three_Years_en.pdf
Ref_056_BSc_IE_Transition_TBdk_into_BC_Major_IE_nl.xls
Ref_057_BSc_IE_USE_Packages_en.pdf
Ref_058_FTC_Admission_MSc_IM.pdf
Ref_059_FTC_Admission_MSc_MSE.pdf
Ref_060_FTC_Admission_MSc_OML.pdf
Ref_061_FTC_BSc_MSc_Admission_Flow_Matrix_nl.pdf
Ref_062_FTC_Facts_Figures_2014-2016.pdf
Ref_063_FTC_Method_of_Working_en.pdf
Ref_064_FTC_Method_of_Working_nl.pdf
Ref_065_List_of_Terms_and_Abbreviations.pdf
Ref_066_MSc_IM_Awards_for_Students_ennl.pdf
Ref_067_MSc_IM_Course_List_2012-2013.en.pdf
Ref_068_MSc_IM_Course_List_2013-2014.en.xls
Ref_069_MSc_IM_Declaration_TUe_Code_of_Scientific_Conduct_Master_Student_2016_en.pdf
Ref_070_MSc_IM_Declaration_TUe_Code_of_Scientific_Conduct_MSc_Thesis_2016.pdf
Ref_071_MSc_IM_Dual_Degree_with_MSc_IS_en.pdf
Ref_072_MSc_IM_Exchange_Students_Out_BI_Tool_Data_2010-2014_ennl.pdf
Ref_073_MSc_IM_Graduates_Grades_and_MSc_Thesis_Titles_Last_Three_Years_en.pdf
Ref_074_MSc_IM_Introduction_September_2015_en.pdf
Ref_075_MSc_IM_Learning_Outcomes_Core_Courses_en.pdf
Ref_076_MSc_IM_Learning_Outcomes_versus_DSFR_Generic_Competences_en.pdf
Ref_077_MSc_IM_Master_Program_2015-2016_en.pdf
Ref_078_MSc_IM_Master_Thesis_Assessment_Form_en.pdf
Ref_079_MSc_IM_Master_Thesis_Manual_en.pdf
Ref_080_MSc_IM_Master_Track_Information_2015-2016_en.pdf
Ref_081_MSc_IM_MSc_OML_Annual Report_2013-2014_en.pdf
Ref_082_MSc_IM_MSc_OML_Annual_Report_2014-2015_en.pdf
Ref_083_MSc_IM_MSc_OML_Course_List_2012-2013_en.xlsx
Ref_084_MSc_IM_MSc_OML_Course_List_2013-2014_ennl.xls
Ref_085_MSc_IM_MSc_OML_Course_List_2014-2015_ennl.xls
Ref_086_MSc_IM_MSc_OML_Course_List_2015-2016_en.pdf
Ref_087_MSc_IM_MSc_OML_Exchange_Students_In_BI_Tool_Data_2010-2014_ennl.pdf
Ref_088_MSc_IM_MSc_OML_Mentor_Selection_Explanation_en.pdf
Ref_089_MSc_IM_MSc_OML_Test_of_Professional_Skills_2015-2016_en.pdf
Ref_090_MSc_IM_Program_Redesign_2015-2016_en.pdf
Ref_091_MSc_IM_Program_Tracks_and_Roster_Structure_2015-2016_en.pdf
Ref_092_MSc_IM_Ranking_Dutch_University_Information_Guide_2010-2015_ennl.pdf
Ref_093_MSc_IM_Rankings_Dutch_University_Information_Guide_2016_ennl.pdf
Ref_094_MSc_IM_Students_International_Semester_Fall_2015_en.pdf
Ref_095_MSc_IM_Students_International_Semester_Fall_2016_en.pdf
Ref_096_MSc_IM_Students_International_Semester_Spring_2016_en.pdf
Ref_097_MSc_IM_Study_Yields_1CH0_Data_All_Tables_en.pdf
Ref_098_MSc_IM_Study_Yields_1CH0_Data_All_Years_Untill_2014-2015_nl.xlsx
Ref_099_MSc_IM_Study_Yields_OWI_Data_All_Years_Untill_2014-2015_ennl.pdf
Ref_100_MSc_IM_Study_Yields_Within_ 2_and_3_Years_BI_Tool_nl.pdf
Ref_101_MSc_IM_Transition_Roster_Old_New_Feb_2015_en.pdf
Ref_102_MSc_OML_Awards_for_Students_ennl.pdf
Ref_103_MSc_OML_Course_List_2012-2013_en.pdf
Ref_104_MSc_OML_Course_List_2013-2014_en.xls

Ref_105_MSc_OML_Course_List_2014-2015_en.xls
Ref_106_MSc_OML_Declaration_TUe_Code_of_Scientific_Conduct_Master_student_2016_en.pdf
Ref_107_MSc_OML_Declaration_TUe_Code_of_Scientific_Conduct_MSc_Thesis_2016.pdf
Ref_108_MSc_OML_Dual_Degree_3+2 Agreement ITESM_en.pdf
Ref_109_MSc_OML_Dual_Degree_Agreement_KAIST_en.pdf
Ref_110_MSc_OML_Exchange_Students_Out_BI_Tool_Data_2010-2014.ennl.pdf
Ref_111_MSc_OML_Graduates_Grades_and_MSc_Thesis_Titles_Last_Three_Years_en.pdf
Ref_112_MSc_OML_Individual_Dual_Degree_Program_with_DSE_en.xlsx
Ref_113_MSc_OML_Individual_Dual_Degree_Program_with_IAM_en.xls
Ref_114_MSc_OML_Introduction_15_februari_2015-2016_en.pdf
Ref_115_MSc_OML_Learning_Outcomes_Core_Courses_en.pdf
Ref_116_MSc_OML_Learning_Outcomes_versus_DSFR_Generic_Competences_en.pdf
Ref_117_MSc_OML_Master_Thesis_Assessment Form_en.pdf
Ref_118_MSc_OML_Master_Thesis_Manual_en.pdf
Ref_119_MSc_OML_Master_Tracks_2015-2016_en.pdf
Ref_120_MSc_OML_Program_Tracks_and_Roster_Structure_2015-2016_en.docx
Ref_121_MSc_OML_Program_Redesign_2015-2016_en.pdf
Ref_122_MSc_OML_Ranking_Dutch_University_Information_Guide_2010-2015_ennl.pdf
Ref_123_MSc_OML_Rankings_Dutch_University_Information_Guide_2016_ennl.pdf
Ref_124_MSc_OML_Special_Master's_Track_MSE_2016_en.pdf
Ref_125_MSc_OML_Students_International Semester_Spring_2016_en.xlsx
Ref_126_MSc_OML_Students_International_Semester_Fall_2015_en.pdf
Ref_127_MSc_OML_Students_International_Semester_Fall_2016_en.pdf
Ref_128_MSc_OML_Study_Yields_1CH0_Data_All_Tables_2010-2014_en.pdf
Ref_129_MSc_OML_Study_Yields_1CH0_Data_All_Years_Untill_2014-2015_nl.xlsx
Ref_130_MSc_OML_Study_Yields_BI_Tool_Data_Within_2_and_3_Years_2010-2014_nl.pdf
Ref_131_MSc_OML_Study_Yields_OWI_Data_All_Years_Untill_2014-2015_ennl.pdf
Ref_132_MSc_OML_Transition_Roster_Old_New_Feb_2015_en.pdf
Ref_133_MSc_OML_Update_Track_&_Mentor_Matching_Procedure_January_2016_en.pdf
Ref_134_OER_App_BSc_BC_2015-2016_en.pdf
Ref_135_OER_App_BSc_BC_2015-2016_nl.pdf
Ref_136_OER_App_BSc_BC_2016-2017_en.pdf
Ref_137_OER_App_BSc_BC_2016-2017_nl.pdf
Ref_138_OER_App_BSc_old_style_2015-2016_nl.pdf
Ref_139_OER_App_MSc_GS_IE_2015_2016_en.pdf
Ref_140_OER_App_MSc_GS_IE_2015-2016_nl.pdf
Ref_141_OER_App_MSc_GS_IE_2016-2017_en.pdf
Ref_142_OER_App_MSc_GS_IE_2016-2017_nl.pdf
Ref_143_OER_App_MSc_old_style_2015-2016_nl.pdf
Ref_144_OER_App_MSc_old_style_2016-2017_en.pdf
Ref_145_OER_Explanation_2016-2017_nl.pdf
Ref_146_OER_Model_Examination_Regulations_BSc_MSc_2015-2016_en.pdf
Ref_147_OER_Model_OER_BSc_BC_2016-2017_ennl.pdf
Ref_148_OER_Model-OER_MSc_GS_2016-2017_ennl.pdf
Ref_149_Pre_MSc_IM_OML_Admission_HBO_2014-2015_nl.pdf
Ref_150_Pre-MSc_IM_2014-2015_en.pdf
Ref_151_Pre-MSc_IM_2015-2016_en.pdf
Ref_152_Pre-MSc_IM_2016-2017_en.pdf
Ref_153_Pre-MSc_IM_Information_2015-2016_en.pdf
Ref_154_Pre-MSc_IM_Information_2016-2017_en.pdf
Ref_155_Pre-MSc_OML_2015-2016_en.pdf
Ref_156_Pre-MSc_OML_2016-2017_en.pdf
Ref_157_School_IE_Actions_Following Previous_Visitation_nl.pdf
Ref_158_School_IE_Advisory_Board_IE&IS_Members_ennl.pdf
Ref_159_School_IE_Advisory_Board_IE&IS_Minutes_Meeting_June 2016_nl.pdf

Ref_160_School_IE_Alumni_Association_ALUMNIA_Description_nl.pdf
Ref_161_School_IE_Alumni_Monitor_2015_nl.pdf
Ref_162_School_IE_Anual_Report_Exam_Committee_IE_2014-2015_nl.pdf
Ref_163_School_IE_Contribution to USE_nl.pdf
Ref_164_School_IE_Department_IE&IS_Regulations_June_2015_nl.pdf
Ref_165_School_IE_Department_IE&IS_Regulations_May_2016_nl.pdf
Ref_166_School_IE_Directive_Assessment_Committee_IE_BSc_MSc_thesis_February_2015_en.pdf
Ref_167_School_IE_Domain-Specific_Frame_of_Reference_en.pdf
Ref_168_School_IE_Examination Policy_2013_nl.pdf
Ref_169_School_IE_Examination Policy_version_2016_ennl.pdf
Ref_170_School_IE_Examinations_Committee_Description_en.pdf
Ref_171_School_IE_Learning_Outcomes_BSc_IE_&_MSc_IM_&_MSc_OML_ACQA_Competences_2015-2016_en.pdf
Ref_172_School_IE_List of Faculty_2016_phd_en.pdf
Ref_173_School_IE_List_of_Faculty_2014_nl.pdf
Ref_174_School_IE_List_of_Faculty_2015_nl.pdf
Ref_175_School_IE_List_of_Faculty_2016_en.pdf
Ref_176_School_IE_Organogram_Department_Board_IE&IS.jpg
Ref_177_School_IE_Preparation_SWOT_Analysis_May_2016_nl.docx
Ref_178_School_IE_Student_Staff_Ratio_2014-2015_en.pdf
Ref_179_School_IE_Student_Staff_Ratio_2015-2016_en.pdf
Ref_180_School_IE_Student_Staff_Ratio_2016-2017_en.pdf
Ref_181_School_IE_Study_Association_INDUSTRIA_Description_en.pdf
Ref_182_School_IE_Study_Program_Committee_Description_en.pdf
Ref_183_School_IE_Time_Lines_IE_Programs.pdf
Ref_184_School_IE_Transition_Survey_BSc_IE_&_Transfer_Survey_MSc_2015-2016_ennl.pdf
Ref_185_TUe_Academic_Criteria_BSc_MSc_Meijers_et_al._2005_en.pdf
Ref_186_TUe_Academic_Criteria_BSc_MSc_Meijers_et_al._2005_nl.pdf
Ref_187_TUe_Annual_Report_Admission_International_Students_BSc_MSc_2013-2014_nl.pdf
Ref_188_TUe_Annual_Report_Admission_International_Students_BSc_MSc_2014-2015_nl.pdf
Ref_189_TUe_Assessment_Framework_BSc_MSc_Halsema_Swagten_2014_nl.pdf
Ref_190_TUe_Bachelor_College_ACB_en.pdf
Ref_191_TUe_Bachelor_College_BSA_Description_en.pdf
Ref_192_TUe_Bachelor_College_Description_en.pdf
Ref_193_TUe_Bachelor_College_ECB_en.pdf
Ref_194_TUe_Bachelor_College_Program_Choice_Check_nl.pdf
Ref_195_TUe_Bachelor_College_Program_Structure_en.pdf
Ref_196_TUe_Bachelor_College_Time_Slots_en.pdf
Ref_197_TUe_BC_Directive_Revision_Bachelor_Programs_2016_en.pdf
Ref_198_TUe_BC_Directive_Revision_Bachelor_Programs_2016_nl.pdf
Ref_199_TUe_Code_of_Scientific_Conduct_2015_en.pdf
Ref_200_TUe_Directive_for_Revision_Master_Programs_April_2016_en.pdf
Ref_201_TUe_Educational_Fraude_Policy_2015_en.pdf
Ref_202_TUe_Educational_Policy_Meijers_Den_Brok_2013_en.pdf
Ref_203_TUe_Educational_Profile_and_Mission_2015_en.pdf
Ref_204_TUe_English_Language_Level_Proviciency_2017-2018_nl.pdf
Ref_205_TUe_Exam_Framework_BSc_MSc_Halsema_Swagten_2014_en.pdf
Ref_206_TUe_Examinations_Committee_Guide_2014_en.pdf
Ref_207_TUe_Examinations_Committee_Profile_2013_en.pdf
Ref_208_TUe_Fraud_and_Pagiarism_Description_2015_en.pdf
Ref_209_TUe_Graduate_Program_IE_2016-2017_Brochure_en.pdf
Ref_210_TUe_Graduate_School_Description_en.pdf
Ref_211_TUe_Graduate_School_ECM_en.pdf
Ref_212_TUe_GS_Directive_Revision_Master_Programs_April_2016_nl.pdf
Ref_213_TUe_GS_Directive_Revision_Master_Programs_February_2015_nl.pdf

Ref_214_TUe_GS_Directive_Revision_Master_Programs_June_2014_ennl.pdf
Ref_215_TUe_GS_Pre-MSc_Revision_Decision_2016.pdf
Ref_216_TUe_GS_Revision_Pre-Master_Programs_Decision_January_2016_en.pdf
Ref_217_TUe_NVAO_Accreditation_Report_Institutional_Assessment_Quality_2014_nl.pdf
Ref_218_TUe_Ranking_Dutch_University_Information_Guide_2015_en.pdf
Ref_219_TUe_Ranking_Dutch_University_Information_Guide_2016_en.pdf
Ref_220_TUe_Rankings_International_2014-2015_en.pdf
Ref_221_TUe_Scientific_Integrity_2015_en.pdf
Ref_222_TUe_Self-Study_Report_Institutional_Assessment_Quality_2013_nl.pdf
Ref_223_TUe_Strategic_Areas_Research_en.pdf
Ref_224_TUe_Types_of_Education_en.pdf
Ref_225_TUe_UTQ_BKO_Faculty_Quality_December_2015_nl.pdf
Ref_226_TUe_UTQ_BKO_2015_en.pdf
Ref_227_School_IE_Student_Workspaces_Pavilion_en.pdf