

**Information dossier in support of the application  
for the New Studies Test**

**Master  
Risk Management**

**N.B.:**

**INTERN CONCEPT T.B.V. VALIDATIE**

***t.b.v. MT, OLC etc.***

**Applicant: University of Twente**



**July 6, 2009**

**DRAFT**



# GENERAL FEATURES OF UNIVERSITY AND MASTER PROGRAMME <sup>1</sup>

## **1. The proposing university**

University of Twente (UT)

§ [www.utwente.nl](http://www.utwente.nl)

§ Executive Board:

- Chairman: Dr. A.H. Flierman
- Vice-Chairman: Ir. K.J. van Ast
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Faculty of Management and Governance

§ [www.mb.utwente.nl](http://www.mb.utwente.nl)

§ Dean: Prof. Dr. P.J.J.M. van Loon

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P.O. Box 217

7500 AE Enschede

## **2. Name of the Master programme**

Risk Management (MRM) <sup>2</sup>

## **3. Language of the Master programme**

Dutch

## **4. Level and orientation**

Scientific (in Dutch: WO) Master

## **5. Length of the programme**

Two to 2.25 years, depending on the start of the Case research project; 70 EC; part-time.

## **6. Novelty**

The MRM postgraduate <sup>3</sup> programme is new to the University of Twente. Master level programmes in related topics like financial risk management and safety management are available in The Netherlands and abroad. At the time of drafting this document the MRM programme is more or less one of a kind in The Netherlands as it is the only comprehensive academic master programme in risk management. The Enterprise Risk Management programme at the business school of the University of Amsterdam is related, but focuses more on financial aspects of risk management.

## **7. Level and titles**

Completing the master programme will lead to the title Master (M). Upon the receipt of approval (accreditation) by NVAO the programme will lead to the title Master of Science (MSc).

## **8. Type of programme**

The programme is parttime.

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<sup>1</sup> In accordance with 'NVAO Handreiking aanvraag Toets Nieuwe Opleidingen NL 15 juni 2005'

<sup>2</sup> A brochure (in Dutch) of the programme can be found in appendix 0-1. Please note that an updated brochure is in preparation.

<sup>3</sup> With Postgraduate we here mean programmes of study that are available to students who have already completed a (bachelor or higher) degree programme and have several years of work experience. The programme offers the opportunity for participants to further their knowledge, skills and qualifications in a particular area of specialisation.

**9. Locations**

The programme will be provided in Enschede (University of Twente).

**10. Existing programme information**

The first cohort of MRM started in January of 2009. Section 1.3 provides the requested information regarding the period in which the programme has already been in existence and the number of students that were taken in.

## DEAN'S PREFACE

This report comprises the Information dossier in support of the application for the New Studies Test (NVAO) of the postgraduate master's programme on Risk Management offered by the Faculty of Management and Governance, University of Twente.

Accreditation by NVAO is sought to comply with the policy of our university to assure the quality of all of its (bachelor and) master's programmes, including the postgraduate ones. Through NVAO accreditation, registry in CROHO, the Dutch register for higher education programmes, will also be established.

This programme is new and the first experiences in running it since January 2009 have been included in this report.

Prof. dr. ir. O.A.M. Fisscher  
Director of Continuing Education  
Faculty of Management and Governance  
University of Twente

Prof. dr. P.J.J.M. van Loon  
Dean  
Faculty of Management and Governance  
University of Twente

Enschede, XXX YY, 2009



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## LIST OF APPENDICES

Appendices can be found in separate documents.

√	Nr.	Title
√	0-1	Programme brochure
√	1.0-1	Economist Intelligence Unit, Best practice in risk management- A function comes of age. 2007
√	2.1.1-1	Benchmark study
√	2.1.1-2	Market survey (partly in Dutch)
√	2.2-1a	Module descriptions
√	2.2-1b	Guideline (Leidraad, in Dutch)
√	2.2.1-1	Overview of risk management-related research at the University of Twente
√	2.2.1-2	CVs
√	2.2.2-1	Faculty of Management and Governance Regulations (March 2009, in Dutch)
√	2.2.2-2	Student Statute (in Dutch; Studentenstatuut / OER)
√	2.2.2-3	Case Research Guidebook (draft, in Dutch)
√	2.2.2-4	Seminar description (example)
√	2.2.4-1	Guidelines for module development (in Dutch)
√	2.2.4-2	Time table
√	2.2.4-3	Student progress monitoring document
√	2.2.5-1	Pre-master statistics course (in Dutch)
√	2.3-1	Faculty of Management and Governance Professor and Associate Professor plan
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√	2.5.1-2	Summary of seminar and module evaluation results
√	2.5.1-3	Faculty of Management and Governance annual cycle for education
√	2.6.1-1	MRM Financial Continuity Statement
√	2.6.3-1	CEO Strategic Plan

Documents available for inspection during the site visit will include information on the University's strategic plan (Route '14) and the Annual plan 2009 of the Faculty of Management and Governance.

## LIST OF NAMES

Position	Name (at the date of submission of this application)
Dean of the Faculty of Management and Governance	Prof. dr. P.J.J.M. van Loon
Director of Continuing Education	Prof. dr. ir. O.A.M. Fisscher
Business Director of the Continuing Education Office	Drs. J.A. Neijzen
Programme leader MRM	Prof. dr. P.B. Boorsma
Programme manager MRM	Dr. J. van den Berg, DipM
Office Manager of the Continuing Education Office	Mrs. E.G.M. Veltman - Van der Woning
Marketing officer of the Continuing Education Office	Mrs. M. Iliohan
Quality assurance coordinator of the Faculty of Management and Governance	Mrs. S.S. Spuls, BSc



## 0 Preface

This document has been submitted to NVAO, The Dutch-Flemish Accreditation Organization, to provide the information required for NVAO to decide on accreditation of the Master of Risk Management (MRM) programme of the University of Twente in accordance to the procedure for a New Studies Test (in Dutch: Toets Nieuwe Opleiding).

In chapter 1, introductory information is provided.

Chapter 2 contains the six elements of the required information for the application for a New Studies Test, in the order as given in the requirements document from NVAO (in Dutch: *Toetsingskader nieuwe opleidingen hoger onderwijs, 14 februari 2003*).

Chapter 3 provides a brief outline of future developments regarding risk management education.

The numbering of figures, tables and appendices has been aligned with the section numbering. For example: the first appendix mentioned for the first time in section A.B.C is numbered as A.B.C-1.

# 1 INTRODUCTION

***Preface: Chapter 1 of this report outlines the history of the risk management programme, the process of preparation of this application for the New Studies Test, the organizational setting of MRM and the results of the first cohort – since January 2009.***

## **Introduction – a short history**

The topic of risk management is of interest to the University of Twente for a number of reasons. First and foremost, risk management is an interdisciplinary field of study, which appeals to our university which integrates technology and social and behavioural sciences<sup>4</sup>. Secondly, our Faculty of Management and Governance hosts educational programmes in business and public management; this expertise constitutes a key building block for a risk management programme. Thirdly, other university Faculties, notably the Faculty of Behavioural Sciences and the Faculty of Engineering Technology have considerable expertise to share in a risk management programme. And fourth, risk management education is considered to be a growth area<sup>5</sup>. The Board of Management of the university strongly supports the programme, as exemplified by the words of the Rector Magnificus, prof. dr. E. Brinksma, in translation: *'The approach that was chosen here for the organizational focus on risk management is a very valuable one (...) I am very pleased with this programme as, in my view, it fits seamlessly to the perspective and profile that we choose for our institution, in which we no longer operate from a dual-core idea, but in which we place social problems in the centre and serve these from a technological and a social sciences approach. (...) It is very good!'*

The Master of Risk Management also fits well into the newly formulated University strategy for its educational programmes, focusing on Research, Design and Organization (in Dutch: the three O's, i.e. Onderzoek, Ontwerpen en Organizatie).

The University of Twente has been engaged in education and research in the area of risk management for a number of decades. Examples of this involvement include: a bachelor-level minor programme on public safety; a master-level track (specialisation) on public safety in the Public Management programme; a master-level track (specialisation) in Financial Engineering (which is comparable to financial risk management, one of the topics in the programme for which approval is sought) in the Business Administration programme; research in information security management, psychological risk perception research and research of risk management in large infrastructure construction projects.

The initial idea to develop a dedicated risk management master programme dates back to a decade ago. In 1999 prof. dr. P.B. Boorsma submitted a proposal for an interfaculty major in Risk Management. The Board decided then on starting a Financial Engineering programme. In 2006 he submitted a renewed detailed proposal to the Faculty of Management and Governance. The dean gave his support for a postgraduate curriculum to be developed. The initiative for this new programme was welcomed because of the ambitions for growth of the Faculty and the development of its portfolio of postgraduate education. It also fits with the professor and associate professor plans of the Faculty, most notably with the recent appointments of prof. dr. M. Junger (Social Safety Studies), prof. dr. R. Kabir (Corporate Finance and Risk Management) and prof. dr. A. Need (Sociology of Public Governance). With the appointment of prof. mr. P. van Vollenhoven as 'practice professor' to the chair of risk management in the Faculty of Management and Governance in 2005, the plans for development of this master programme was an additional stimulus for its development.

The Master of Risk Management is a postgraduate and academic programme that aims at preparing for jobs in companies, government and non-governmental organizations as (project) managers or internal/external consultants specialized in risk management.

<sup>4</sup> The faculty of Management and Governanes sees as important themes in its social sciences programmes: management and governance, innovation, technology and entrepreneurship

<sup>5</sup> Appendix 1.0-1: Economist Intelligence Unit, Best practice in risk management- A function comes of age. 2007

## 1.1 PROCESS OF THE PREPARATION OF THIS APPLICATION

The process of preparation of application for the New Studies Test commenced May of 2007. The criteria for the New Studies Test of NVAO were explicitly used to guide the process of development of the programme. A core team consisting of prof. dr. P.B. Boorsma, prof. dr. ir. O.A.M. Fisscher and Dr. J. van den Berg, DipM, assisted by PhD student Drs. C. Liedenbaum, engaged in the development of the domain description, the benchmark, the profile, the final qualifications, the programme itself, and the staffing of the programme. Also, an interview-based survey of requirements for and market potential of the programme among representatives of the professional field were conducted, and two visits were made to study well-known risk management programmes abroad, i.e. in Australia (Monash University) and Scotland (Glasgow Caledonian University). The latter university was selected not only because it offers a master programme, but also because dr. Lynn Drennan is involved, who is the chief executive of the English Alarm, a public sector risk management organization. Both aforementioned countries, together with New Zealand and the USA, are leading in the field.

Subsequently, May 2008, it was agreed upon to shift the focus to the actual further detailing and writing of the programme and marketing it for the Dutch market and to readress preparations for the application for the New Studies Test after commencing the delivery of the programme in January 2009.

A number of meetings were held with the National Network for Risk Management (NNR) and with the group of core lecturers responsible for the modules of the programme to develop consensus for the programme and to share knowledge and information. Also, the formal rules for the study programme (in Dutch: Onderwijs- en Examenregeling) were approved by the Faculty of Management and Governance, which hosts the risk management master programme.

After the successful start of the first cohort of the risk management programme the preparation of this application was taken up again with high priority. Good practices developed with e.g. the Master of Environmental and Energy Management (approved in December of 2007) were used where appropriate.

Several (parts of) drafts of this documents were submitted for review to various staff members involved.

On March 30, 2009 a first pilot committee review of the (draft) application documentation was held. Committee members included: mr. P. Claes, an authoritative author and practitioner of risk management and former owner of a risk management consultancy firm; prof. dr. ir. J.I.M. Halman, holding a chair in Innovation in Building Management and having considerable professional and academic risk management experience; drs. R. van Dijk, educational policy advisor with extensive experience in developing new programmes; and drs. M. van der Blij, educational advisor, curriculum development expert and lecturer trainer. prof. Halman, drs. Van Dijk and drs. Van der Blij are employees of the University of Twente. Also, drs. M. Voorthuis of Netherlands Quality Agency (NQA), who acted as an advisor to the programme management, was present during this first pilot committee review. Based on the outcomes of the review, some important changes were made to the programme and to this document

In parallel, preparations were made to expedite the internal and external (e.g. 3TU) approval process within the University of Twente. The Board of the 3TU.Federation gave a positive advice on the Twente risk management master programme on May 11, 2009.

## 1.2 ORGANIZATIONAL SETTING OF MRM

### University of Twente

The University of Twente is an entrepreneurial research university, founded in 1961. It focuses on beta and engineering sciences as well as on gamma sciences, and on the multi-disciplinary interface between both. The university organizes its research and educational programmes in six research institutes and five Faculties, respectively. At this moment, the UT has 21 educational bachelor and 32 master programmes, distributed over five Faculties. Approximately 8,800 students study at the University. The University of Twente collaborates with the Technical University of Delft and the Technical University of Eindhoven in the Federation of 3TU<sup>6</sup> and also is a partner in the European network of innovative universities ECIU<sup>7</sup>. The UT is a *research* university. The quality of the academic educational programmes is assured by a range of scientific research themes. University focus areas are information and communication technology, nano technology and biomedical technology, but the UT is also active in other research areas. The research programme of the Faculty of Management and Governance is largely concentrated in the Institute for Governance Studies (IGS)<sup>8</sup> and the Centre for Telematics and Information Technology (CTIT)<sup>9</sup>.

The university has outlined its 5-year plan for 2009 - 2014, coined 'Route14'. An important part of this plan is the implementation of a number of new Schools in which the university's educational activities will be concentrated. The School of key relevance to MRM will be the School of Professional Learning. Because of the introduction of a number of new Schools, the current "faculiteiten" are termed "faculties" throughout this document.

### MRM

MRM is delivered under the auspices of the Faculty of Management and Governance. The Faculty has a staff of approximately 350 and a total of 2,200 students. This Faculty delivers undergraduate and graduate programmes for Business Administration, Public Administration (including European Studies and Public Safety Studies), Health Sciences, Industrial Engineering & Management (including Financial Engineering) and Business & Information Technology. In addition to these programmes, the Faculty also provides an expanding number of academic postgraduate degree programmes, e.g. Public Management and Energy & Environmental Management; these are facilitated by the Continuing Education Office (CEO)<sup>10</sup>.

Like all other Faculties of this university, the Faculty of Management and Governance has a matrix organization. Following a recent restructuring of the university, figure 1.2-1 depicts the resulting organizational structure.

### Organizational and consultative structure of the Faculty

In response to the University of Twente Executive Board initiative "Modern and Efficient Operation", in which the framework has been laid down for the management and governance structure of the university Faculties, the new organizational structure of the Faculty of Management and Governance in broad terms is as follows:

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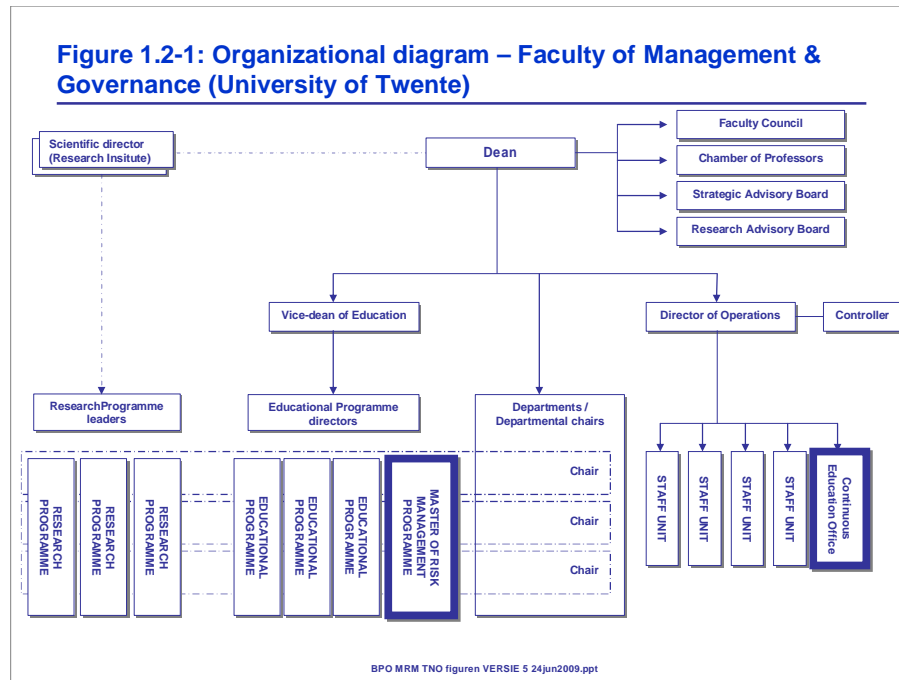
<sup>6</sup> <http://www.3tu.nl/>

<sup>7</sup> <http://eciu.web.ua.pt/>

<sup>8</sup> <http://www.igs.utwente.nl/>

<sup>9</sup> <http://www.ctit.utwente.nl/>

<sup>10</sup> <http://www.mb.utwente.nl/bpo/>



- The line responsibility runs from the **Dean** to the individual **departmental chair persons**, the individual educational **programme directors** and the **director of operations**.
- The **management team** of the Faculty consists of the Dean, the Vice-dean of education and the director of operations. This management team should be regarded as the “air traffic control tower”, which is a “gate way” for matters concerning the Faculty in the direction of various internal stakeholder parties and responsibility bearers.
- The consultative **Faculty Council** group consists of staff and students. Tasks and authorities of the Faculty Council have been laid down in the regulations of the University Council and in the regulations of the Faculty Council as derived from the regulations of the University Council. The Faculty Council meets regularly with the Dean, who can be supported by other members of the management team and the manager of the office of educational support.
- The consultative group of Departmental Chair persons (in Dutch: **vakgroepvoorzitters-overleg (VGV-overleg)**) is an advisory board for the Dean and consists of the Dean and the Departmental Chair persons. The Dean can be supported by other members of the management team. It meets every six weeks. The purpose of this consultation is to involve these managers in a coordinated way at the Faculty level in idea generation, in consultation concerning operations and the preparation and evaluation of policy and to inform them about developments outside the Faculty. During these meetings, operational issues regarding education, research and operations are also dealt with.
- The consultative group of Educational programme directors (in Dutch: **OLD-overleg**) consists of the Dean, the Educational programme directors and the manager of the office of educational support. The purpose of this consultation is to involve these managers in a coordinated way at the Faculty level in idea generation, in consultation concerning operations and the preparation and evaluation of policy and to inform them about educational developments outside the Faculty. It meets every six weeks. When deemed useful, this consultative group meets in between scheduled meetings to deal with operational issues.
- **MRM management.** All postgraduate educational programmes reside under the authority of the programme director of postgraduate programmes (prof. dr. ir. O.A.M. Fisscher). The programme leader of MRM is prof. dr. P.B. Boorsma. Responsibilities for the management of MRM are carried through collegial consultation.
- **Strategic advisory group.** The participation in this group can change from meeting to meeting. The full participants group consists of: the Departmental Chair persons, the Educational programme directors, the relevant programme leaders of the research programmes of the University Research

Institutes, the Dean, the relevant Scientific Directors and the director of operations. This meeting will take place twice or three times a year.

- **Chamber of Professors**, consisting of the Dean and all professors of the Faculty. This Chamber meets twice or three times a year. During these meetings, the Dean informs the participants and seeks advice on (policy) issues concerning education and research.
- **Research advisory board**, consisting of one senior researcher of each Faculty research programme. This board advises the Dean as to the development of the Faculty research from the perspective of the desired relationship with education, and *vice versa*.

The MRM programme falls under the auspices of the Director of continuing education, prof. dr. ir. O.A.M. Fisscher and is supported by the Business Director of the Continuing Education Office (CEO), drs. J. Neijzen<sup>11</sup>. The programme leader of the programme is prof. dr. P.B. Boorsma. The MRM programme manager is dr. J. van den Berg, DipM. Daily coordination is done by the office manager of CEO, Mrs. Veltman.

Mr. Neijzen is responsible for "PIOFAH", i.e. Personnel, Information, Organization, Finance, Administration and Housing of CEO. CEO is responsible for both the cost and revenue sides of its activities. Prof. Fisscher is responsible for the content side of the portfolio of postgraduate education. Mr. Fisscher is supported by Mr. Neijzen.

The programme leader, programme manager and office manager of MRM are staffed from CEO. The MRM programme leader and the Director of continuing education currently have a functional relationship. The MRM programme leader is responsible for the content of the programme and for delivering the output of the programme, as e.g. demonstrated by performance in student evaluations. He has delegated the operational management to the programme manager Mr. van den Berg.

Figure 1.2-1 shows a number of recently made changes: the Faculty already has a structure with a vice-dean of education, prof. dr. S.A.H. Denters<sup>12</sup>, but a new position for a vice-dean of education has been created. This vice-dean, together with the dean (prof. dr. P.J.J.M. van Loon) and the Director of Operations, drs. S.C. van der Haagen<sup>13</sup>, forms the management team of the Faculty.

From a content point of view prof. Fisscher, the Director of continuing education, has the final responsibility for all postgraduate education. In parallel to the restructuring of the Faculty, decisions regarding the allocation of financial profits or losses will be made and implemented.

In summary, the main responsibilities for MRM are distributed as follows:

*Table 1.1 – Current allocation of responsibilities for MRM*

Responsibility	Prof. Fisscher	Prof. Boorsma	Drs. Neijzen	Dr. van den Berg
Content	For the Continuous Education portfolio	MRM, overall and parts of the programme		
Operation		PIOFAH of MRM	PIOFAH of CEO	Programming and planning parts of the curriculum.
Output		MRM		

<sup>11</sup> Drs. Neijzen acts as an interim manager. A regular manager is sought

<sup>12</sup> Prof. Denters will be succeeded by prof. dr. R.A. Wessel as per September 1, 2009

<sup>13</sup> Drs. Van der Haagen will leave the University in 2009. A successor is sought

## 1.3 RESULTS OF EXISTING PROGRAMME

The first cohort of the Master's programme on Risk Management started in January, 2009 with twelve students. Throughout chapter 2 of this report, relevant information from (evaluations of) this ongoing cohort is provided in grey text boxes.

## 2 ASSESSMENT FRAMEWORK (NVAO)

**Preface: Chapter 2 of this report provides the information as requested for the six criteria of the Assessment Framework of NVAO. Numbering and titles are in line with this document.**

### 2.1 AIMS AND OBJECTIVES

#### Introduction

In this section the domain, aims and objectives of the Risk Management programme are covered. To this end, a generic and subsequently more detailed description of the domain and the domain-specific requirements is given in section 2.1.1. In section 2.1.2 the match of the Risk Management final qualifications with the Dublin Descriptors is provided. And in section 2.1.3 the final qualifications are shown to meet the demands from the scientific discipline and the relevant profession(s).

#### 2.1.1 Domain-specific requirements

In this paragraph information is provided with respect to the match between the programme and the following three components:

1. Requirements from the domain and the position in the domain.
2. Requirements from (foreign) peers.
3. Requirements from practice.

First, however, we will describe the domain to which the Master in Risk Management belongs, and the final qualifications of the programme.

#### Introduction

This section deals with the broader domain of risk management, the position of the MRM programme within this broader domain and the construction of the domain-specific frame of reference for the MRM programme, detailing the requirements from academia and the professional field. This section contains the following six sub-sections:

- An outline of what risk management is
- A domain-specific frame of reference for the domain of risk management is as yet not available
- Broader domain: Findings of an international survey of risk management programmes
- Choice of the position for the MRM programme and key consequences thereof
- Sources for construction of the domain-specific frame of reference for the MRM programme
- Construction of the domain-specific frame of reference for MRM: Requirements from academia and the professional field for final qualifications and programme.

This section can be envisioned to contain two consecutive steps: the first step is from the broader domain of risk management to the position chosen for MRM, and the second step is to develop the domain-specific frame of reference for the MRM programme based on this choice of position.

#### **An outline of what risk management is** <sup>14, 15</sup>

Various definitions of risk and risk management are used by academics and practitioners. Box 2.1.1-1 provides definitions from Vaughan <sup>16</sup>:

#### *Box 2.1.1-1: Vaughan's definitions of Risk and Risk Management*

*Risk* is a condition in which there is the possibility of an adverse deviation from a desired outcome that is expected or hoped for. A *pure risk* only involves the chance of loss or no loss.

*Risk management* is a scientific approach to the problem of pure <sup>17</sup> risk, and its objective is the reduction and elimination of pure risks facing the business firm.

<sup>14</sup> Crouchy, Michel, Galai, Dan, Mark, Robert, The Essentials of Risk Management. McGraw-Hill (2006)

<sup>15</sup> Drennan, Lynn T. and McConnell, A., Risk and Crisis Management in the Public Sector. Routledge (2007)

<sup>16</sup> Emmett J. Vaughan, Risk Management (1996)



It should be noted here, that many definitions refer to *pure risks* (the statistical distribution of which are known) and do not include speculative risks. The MRM programme, too, focuses on pure risks, although speculative risks are covered as well.

Although risk has been with man since the dawn of mankind, risk management as a management discipline dates from the 1950s, when Markowitz laid the foundations of modern (financial)<sup>18</sup> risk analysis in 1952 and Snyder first dubbed the term in a 1957 insurance presentation. Frank Knight gave an important contribution by his discussion of the concept of risk as opposed to (real) uncertainty. From the 1960s onward, risk management developed further in the financial sector and expanded into other industries and into the public and not-for-profit sectors. Contributions to the development of risk have been given by Nobel prize laureates Arrow, Simon (Bounded Rationality), Markowitz (Portfolio Theory), Black & Scholes (Option Theory) and Kahneman & Tversky.

Development of and interest in risk management were enhanced by various types of crises<sup>19</sup>. High profile international crises included the financial industry, the oil industry (Piper Alpha, Exxon Valdez), space travel (Space Shuttles Challenger and Columbia), sea and rail transportation (Zeebrugge ferry, London King's Cross Underground), nuclear energy (Chernobyl), nature (Hurricane Katrina, Asian tsunami), human health (avian flu, SARS) and terrorism (9/11, London, Madrid and Mumbai bombings). Global warming is considered to be to one of the largest risks facing the planet. In the Netherlands, high profile crises include the Delta flood disaster of 1953, the South Moluccan train hostage affairs, the Bijlmer air disaster, the Enschede firework explosion, the New Year fire in Volendam, the Ahold case, the Schiphol fire and the recent concern of the outcomes of medical probiotics testing, the financial crisis leading to the losses of ABN-AMRO, ING, FORTIS and the major tunneling problems with the new North-South line of the subway in Amsterdam and in Cologne. Recently, housing corporations were prompted to enhance their governance policies and systems, following unrest with respect to executive remuneration.

Since the 1960s the domain has evolved to include other than financial dimensions of (pure) risk as well. Especially since the problems Shell was facing with the sinking of the Brent Spar and with local resistance in the delta in Nigeria, the concept of image risk became a major risk discussed by boards of industrial companies or political organizations like the board of mayor and deputies at the municipal level. Today, the (international) *professional* domain of risk management is complex and well-developed. Especially financial risk management has been developed into a fast growing body of knowledge, literature and expertise. But over the last decades comprehensive risk management is becoming mature, with many professional organizations, many books and journals, practice oriented and academic conferences, and a well-accepted place in many organizations. In organizations, risk managers can be found both in line and in staff functions, including project management, but also as consultants either in audit firms, insurance companies or specialised consultancy firms. At present an international ISO standard is being developed to promote the universal use of terminology. The risk management process plays a key role in the professional domain. Currently, the domain is also seen to include intra-organizational and inter-organizational issues, public safety and security. And, due to its complexity, the domain nowadays includes operational-specialist and strategic-generalist aspects. Furthermore, risk management is relevant to both public and private organizations.

Recently, some argue that 'classical' risk management cannot adequately deal with 'modern' risks, i.e. risks of which little is as yet known<sup>20</sup>. The status-quo of a 'modern' risk can change over time because of availability of sufficient information. Examples of current 'modern' risks include nanotechnology, genetic modification and certain aspects of human food. This discussion is a contemporary version of the older debate discriminating between insurable and non-insurable risks, e.g. the point-of-view taken by economist Frank Knight concerning pure risks and uncertainties. Typically, 'modern' risks surpass the organizational level and therefore require managing at the level of the society.

In contrast to the professional domain of risk management, its academic (educational) counterpart is still less clearly defined<sup>21</sup>. Consensus seems to exist about the central ideas of risk management, which may be

<sup>17</sup> A 'speculative' risk involves a possibility of either loss or gain.

<sup>18</sup> Please note that in this document 'financial risk management' is considered to be risk management as conducted by a member of the financial industry. Risk financing, on the other hand, deals with financing risks. Risk financing is not only concerned with financing damages incurred, but also with financing risk control measures.

<sup>19</sup> Already in the nineteenth century, Dr. John Snow pioneered the statistical study of cholera deaths in London, 1854, to pinpoint a specific water well as the source of the disease, thus initiating both the discipline of epidemiology and centralized drinking water treatment and distribution

<sup>20</sup> E.g.: the scientific council for government policy ( in Dutch: Wetenschappelijke Raad voor het Regeringsbeleid) study from 2008.

<sup>21</sup> There is no consensus, among practitioners, on scope, processes and tools for risk assessment and risk treatment. Meaningful and practical ways to calculate probability and severity of risk, two essential theoretical elements of risk evaluation, for example, have yet to be

defined by the policy cycle of risk management and the steps therein. Studying the broad and fast growing array of literature <sup>22</sup> there is consensus about the following steps which define risk management: a) policy formulation and organization, b) risk identification, c) risk assessment and setting priorities, d) risk control (including different approaches and instruments such as retention, prevention, reduction, transfer, including insurance), e) financing <sup>23</sup>, f) evaluation and feedback. Besides this risk policy cycle <sup>24</sup> other approaches exist, e.g. the operational RISMAN <sup>25</sup> method developed by RisNet, and ERM (Enterprise Risk Management). ERM will be discussed in the subsection *Construction of the domain-specific framework of reference for MRM: Requirements from academia and the professional field for final qualifications and programme*.

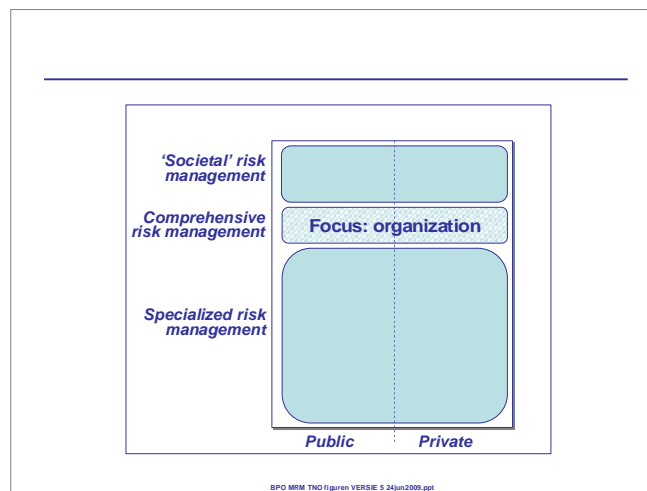
### ***A domain-specific framework of reference for the domain of risk management is as yet not available***

An authoritative academic educational domain *description* was not found in the literature while developing this document. Therefore, the programme management has constructed the description of the domain in two consecutive steps, a mentioned above. The first step is outlined in the next section, describing the findings of an international survey.

### ***Broader domain: Findings of an international survey of risk management programmes***

An (inter)national benchmarking study initiated in late 2007 and finalised in 2009 <sup>26</sup> showed (see figure 2.1.1-1) that risk management educational programmes are either specialized or focus on 'societal' risk management. The benchmarking study also showed that a 'niche' exists between the specialized and societal parts of the domain.

Figure 2.1.1-1: Summarized outcomes of 2007/2009 benchmark study



### ***Choice of the position for the MRM programme and key consequences thereof***

The Twente Master of Risk Management programme has been developed to 'bridge the gap' between societal and specialized risk management - indicated by 'comprehensive' (in Dutch: 'integraal') risk management in figure 2.1.1-1. As a result, the Twente programme needs to provide learning of both a number of the specialized areas and of some of the 'societal' risk management issues. Also, the choice was made to include

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developed. There are no generally accepted, consistent and comparable performance indicators for risk management, or accepted methods to do meaningful costs benefits analysis.' [Ferma ISO Position Paper 070622, 2007]

<sup>22</sup> See e.g. the intriguing introduction by Peter L. Bernstein 1996) *Against the Gods, The remarkable story of risk*; or the classical book of C.Arthur Williams jr and Richard M. Heins (1989) *Risk Management and Insurance*.

<sup>23</sup> Some sources refer to "financing" when in fact insurance is meant. Insurance is just one of the instruments, including other transfer measures like a captive or contractual transfer. With financing the cost side of risk is meant: weighing the costs of taking measures against the loss (reduction).

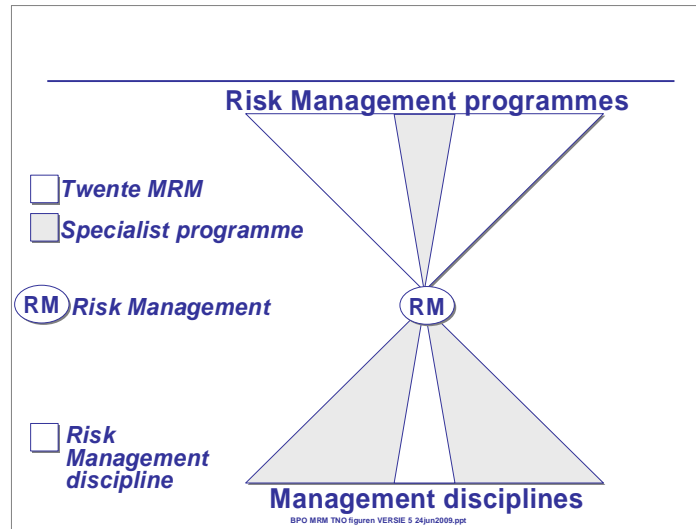
<sup>24</sup> Published risk management cycles differ in certain aspects

<sup>25</sup> <http://www.risman.nl/>

<sup>26</sup> MRM Benchmark report, Appendix 2.1.1-1. 2009.

both the private and public sectors. This is a logical step since the principles, theories and methodologies for managing risks are sufficiently generic at the level of the organization. Also, it is well worth noting that, increasingly, public and private sector organizations are facing the same (risk) management issues. Risk management is to be considered as a specialization of management. The MRM programme, on the other hand, is a generalistic risk management programme. This position of MRM is illustrated schematically in figure 2.1.1-2.

Figure 2.1.1-2: Schematic representation of risk management and risk management programmes



### **Technological risks**

In line with the profile of the University of Twente, the management of technological risks is considered vital for the Twente programme. Technological risks are connected to a broad range of technologies, e.g. chemicals, pharmaceuticals, ICT, nuclear energy generation and nano-sized particles. As a consequence of the broad range of existing and emerging technologies, the management of technological risks also is a broad topic. It can range from personal protection clothing for workers in the chemical industry to societal debate about newer technologies, e.g. nano-sized particles or biotechnology. Section 2.2 provides information regarding the topics included in the Twente programme.

### **Sources for construction of the domain-specific framework of reference for the MRM programme**

The domain-specific framework of reference for the MRM programme has been constructed from the following sources:

- a. Academia
- b. Professional practice
- c. A market survey

#### **Ad a. Academia**

The benchmarking study did point to a (limited) number of risk management programmes having a position comparable to the Twente programme. One of the most important ones is the Master of Risk Management programme of ARMU, the Australian Risk Management Unit, of Monash University, Australia.

The programmes of Monash/ARMU, Glasgow Caledonian University (both were visited in 2008 by the Twente programme management), University of Eastern London, KU Leuven and of The Hague University of Professional Education are summarized in appendix 2.1.1-1.

**Ad b. Professional practice**

A large number of professional bodies is active in the field of risk management <sup>27</sup>. Globally, the Professional Risk Managers' International Association (PRMIA) and GARP, the Global Association of Risk Professionals help to advance the discipline. In the USA the American Public Risk Management Association (PRIMA) has been pioneering, publishing reports and giving courses; COSO, the Committee of Sponsoring Organizations of the Treadway Commission, has developed an integrated framework for Enterprise Risk Management (ERM) <sup>28</sup>. In Europe, the Public Risk Management Organization (PRIMO Europe) is an umbrella organization for independent country 'chapters'. The European Institute for Risk Management (EIRM), a membership-based knowledge network, is one of the partners in PRIMO Europe.

BELRIM is a key risk management organization in Belgium. PRMIA and PRIMO (since 2006) have established Chapters in the Netherlands. PRIMO, too, has developed a risk management method and process <sup>29</sup>. In addition, NARIM (Netherlands' Association of Risk and Insurance Managers), the Dutch member of FERMA, RISNET and GVRM ("Genootschap voor Risicomanagement", Association for Risk Management) are active as well. Twente University started an umbrella organization called the National Network for Risk Management (NNR), which has members from the aforementioned organizations and from different sectors in Dutch society. The NNR has expressed its support of the new MRM curriculum.

Quite a few of the professional bodies mentioned above are active in the field of risk management education. Appendix 2.1.1-1 (benchmark) provides additional information.

**Ad c. A market survey**

In March and April of 2008 a market survey was conducted by interviewing 16 representatives of the public and private sectors, academia, consultancy and professional bodies. The full report is provided in appendix 2.1.1-2. The overall conclusions of this market survey are:

- The survey demonstrates considerable support for the initiative, design and content of the MRM programme (one of the interviewees commented: 'This is an excellent initiative'). Bridging the gap between theory and practice is considered to be a key issue.
- Interviewees provided a variety of suggestions to include topics in the programme.
- Some indicate that the size and fee of the programme are high.

Many of the suggested topics have been included in the programme for which accreditation is now sought. Examples are: decision models (included in module 2, Risk Assessment), Liability, Legal aspects, Internal audit and fraud included in obligatory (sub)modules, the use of the Bernstein book, project risk management and the RisMan method.

See section 3, Outlook, for a brief discussion of future developments of risk management education, e.g. shorter courses and the German market, as suggested by one of the interviewees.

Clearly, inclusion into the programme of a number of the suggested topics could not be granted. An example is that freedom for students to choose electives was not included.

<sup>27</sup> To name just a few: RMA, GARP, ORX, AIRMIC, RIMS, ARIA, PRIMA, PARMA, STRIMA, ALARM, NIWS, ABA, PRMIA, URMIA, ERMAC, PURMA, FIRMA, IRMBA, BELRIM, FERMA, NARIM, EPRMA, PERI, SARMA, CRIMFA

<sup>28</sup> :  
 • *Aligning risk appetite and strategy* – Management considers the entity's risk appetite in evaluating strategic alternatives, setting related objectives, and developing mechanisms to manage related risks.  
 • *Enhancing risk response decisions* – Enterprise risk management provides the rigor to identify and select among alternative risk responses – risk avoidance, reduction, sharing, and acceptance.  
 • *Reducing operational surprises and losses* – Entities gain enhanced capability to identify potential events and establish responses, reducing surprises and associated costs or losses.  
 • *Identifying and managing multiple and cross-enterprise risks* – Every enterprise faces a myriad of risks affecting different parts of the organization, and enterprise risk management facilitates effective response to the interrelated impacts, and integrated responses to multiple risks.  
 • *Seizing opportunities* – By considering a full range of potential events, management is positioned to identify and proactively realize opportunities  
 • *Improving deployment of capital* – Obtaining robust risk information allows management to effectively assess overall capital needs and enhance capital allocation.' [COSO ERM – integrated framework, Executive Summary, September 2004]

<sup>29</sup> <http://www.primoeurope.org/oak.jsp?id=1246>

## **Construction of the domain-specific framework of reference for MRM: Requirements from academia and the professional field for final qualifications and programme**

### **Position in the domain of risk management**

The originally planned position in the risk management domain and the profile of the intended Twente MRM programme have been confirmed by the benchmarking. This will be illustrated as follows:

MRM, focusing on *comprehensive risk management* at the *organizational level* of *public and private organizations* fills a niche between programmes focusing either on societal risk management or on specialized sub-domains as depicted in figure 2.1.1-1. Figure 2.1.1-3 shows a schematic illustration of the more detailed profile of MRM, with attention being paid to both societal risk management and several specialized sub domains of risk management, e.g. financial risk, project risk and technological risk. The choice for a programme with this position and profile is supported by the professional requirements benchmarking<sup>30</sup>, including the National Network for Risk management (NNR)<sup>31</sup> and by the market study which were carried out for MRM.

Figure 2.1.1-3: Schematic illustration of MRM profile



MRM uses the risk policy cycle as the 'backbone' of the programme, and not ERM<sup>32</sup>. Box 2.1.1-2 provides a brief description of ERM and motivation to choose the risk management cycle as the backbone of MRM.

#### **Box 2.1.1-2: ERM versus Comprehensive risk management**

The (second, 2003) COSO framework, which is promoted especially by the accountancy profession, currently is frequently referred to as Enterprise Risk Management or ERM. ERM typically is presented as a three-dimensional model which describes<sup>33</sup> (i) internal control as part of a process, to which objective setting, event identification and risk response were added compared to the predecesing framework (COSO IC), (ii) corporate objectives and (iii) control activities in pursuit of the corporate objectives.

Integrated risk management, compared to the siloed 'classical' risk management, is considered to be one of the greatest benefits of ERM<sup>34</sup>. Of key importance, also, is linking organizational objectives and risks on the one hand, and the relationships with many different risk management and internal control activities on the other hand<sup>35</sup>. The comprehensive risk management approach of the Twente MRM programme shares this key characteristic with ERM.

<sup>30</sup> See e.g. <http://www.marsh.nl/serviceNL/riskconsulting/CROofoudeCFO.php>

<sup>31</sup> The NNR was founded in 2006 by prof. dr. Peter B. Boorsma. NNR is an informal, private network of representatives from science (University of Twente, Technical University of Delft, Dutch Research Council for Safety), public sector (municipalities of Almere and Roosendaal), private sector (ProRail, DSM, Marsh, E & Y, NAR, previously also Shell, Rotterdam Seaport) and professional organizations (PRIMO, NARIM, GvRM, RisNet, ISO). The NNR objectives are: (a) support the development of risk management knowledge; (b) dissemination of knowledge; (c) mutual support, and recently added: (d) contributing to the foundation of a professional journal; (e) contributing to the arrangement of a register and of the formal recognition of the professional as 'certified risk manager'.

<sup>32</sup> Clearly, the (draft) ISO 31000 standard on risk management will be dealt with in MRM

<sup>33</sup> Anderson, Richard, Corporate Risk Management (assignment from OECD), March 9, 2009

<sup>34</sup> Ernst & Young, Integral risk management. Accountants number 6, 2003.

<sup>35</sup> Visser, Kees (E&Y), e-mail dated April 27, 2009

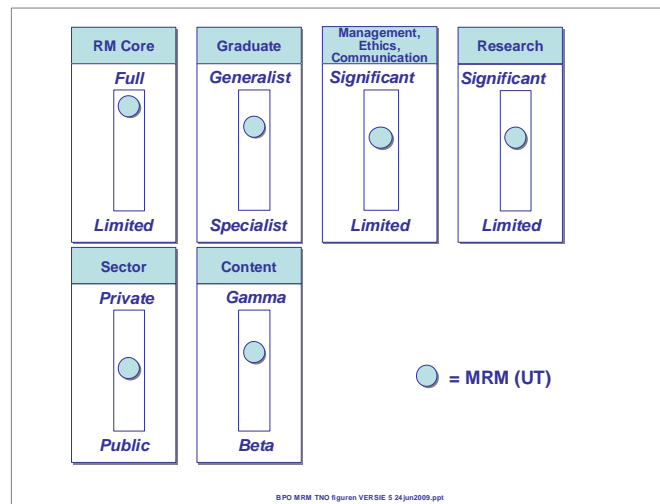
<sup>36</sup> Faber, H. and Visser, K., New COSO framework does not solve problems of predecessor. Audit Magazine, 1 (2006) 20

<sup>37</sup> re: De Pooter, February 12, 2009

The Twente MRM programme profile differs from ERM in two aspects: first, with the profile of 'comprehensive risk management', MRM focuses on the way of thinking regarding risk management and on the organization, irrespective of the organization being (semi) public or private, i.e. a 'for profit' or a 'not for profit' organization; because of this profile, the wording 'Enterprise' in ERM is confusing because it suggests a focus on private organizations. Second, ERM suggests that the emphasis is on strategic risks. MRM, however, focuses on the way of thinking and on all categories of risk, while the so-called 'pure risks' - risks which cause damage - are being accentuated. ERM is also criticised<sup>36</sup> basically because attractive additions to COSO IC are only of a conceptual nature, with hardly any operationalisation. And finally, the ERM approach is considered to be too exhaustive for mid-sized organizations<sup>37</sup>.  
ERM (COSO II) is, however, a subject taught in the MRM programme (in seminar 2 of module 1).

Figure 2.1.1-4 provides a schematic representation of a number of key attributes of the MRM programme:

Figure 2.1.1-4: Key attributes of Twente MRM



### Requirements for graduates and for a programme

The benchmarking study indicates the following requirements:

The key *final qualifications* are:

- Knowledge and understanding of risk and risk management concepts;
- Application of risk management knowledge;
- Identification, analysis and evaluation of risk management tools and methods;
- Implementation and execution of risk management.

FERMA, an organization which was mentioned earlier for its standard, has defined the risk manager as in box 2.1.1-3.

#### Box 2.1.1-3: Risk Manager definition of FERMA

What is a Risk Manager?

The risk manager supports the company to achieve its objectives. He helps to identify the weaknesses that could threaten the realization of such objectives and the opportunities. He is a coordinator, educator and communicator. The risk manager's profile is largely determined by the structure to which his actions will apply. Experienced based, this position must allow adaptation to a multitude of professional cultures (financial, legal, technical, commercial,...) and be combined with an attitude to communicate and convince.

The key *requirements for an academic risk management programme* thus are:

- i. Knowledge of risk management principles, including understanding of the concept of risk and risk management within different contexts
- ii. Approaches to and instruments for managing risk (e.g. the risk management cycle, the risk management process, categorisation of risks, control and financing instruments)<sup>38, 39</sup>
- iii. Organization and implementation of risk management in the focus sector(s)
- iv. A choice of specialist and/or generalist areas depending on its aim.
- v. A choice to focus on a specific geographical scope
- vi. A choice to focus on specific sector(s) of society
- vii. Ethical aspects of risk management in the focus sector(s)
- viii. Communication aspects of risk management in the focus sector(s)
- ix. Relevant legislation and standards
- x. Professional criteria from relevant professional bodies
- xi. Relevant research outcomes and research methodology

The aim of the Twente Master of Risk Management is an academic programme. As a consequence, the (sub-)domain of the Master of Risk Management includes both academic and practical knowledge of risk management, general academic skills and the ability to perform scientific research into risk management.

### **Objective**

The MRM programme is a postgraduate academic programme that aims at preparing participants, in terms of knowledge and skills, for academic level positions in private and public organizations, for which risk management expertise is required, as (project) managers or internal or external consultants.

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<sup>38</sup> Examples of a classification is according to a. Fields: functional areas in organizations; b. Risk objects: buildings, stocks, employees, customers, rolling materials, etc.; and c. Causes: e.g. terrorism, fire, diminishing sales/number of students/ a.o., wrong application of medicinal drug, etc.

<sup>39</sup> This section of the MRM programme, dealing with the core, is the largest.



## 2.1.2 Match between MRM final qualifications and Dublin Descriptors

The MRM programme has 12 final qualifications, the majority of which has been further specified by subdivision:

Table 2.1-1 Final qualifications of MRM<sup>40</sup>

	<b>The MRM graduate ...</b>
FQ 1	Has knowledge and insight of the theories of risk management, and is capable of and motivated to identifying, following, acquiring and applying new knowledge of these areas.
FQ 2	Has insight in the specific character of risks (and uncertainty), and has knowledge of different types of risks, of the different ways of assessing and controlling risks and of the ways to control financial aspects thereof.
FQ 3	Can enhance risk awareness.
FQ 4	Is, in judging risks, capable of discriminating and recognising the coherence of the different levels (i.e. own organization, chain consciousness, public level) at which risks demonstrate their existence.
FQ 5	Can communicate verbally and in writing about risk management: <ul style="list-style-type: none"> <li>a) Can effectively transfer information about risk management, leading to consensus, understanding, acceptance and action.</li> <li>b) Recognises the impact of internal and external communication for the organization and its surroundings and takes this in account in this communication.</li> </ul>
FQ 6	Can clearly and unambiguously transfer conclusions, and the knowledge, motives and considerations that support these, to a public of specialists and non-specialists
FQ 7	Can advise on risk management <ul style="list-style-type: none"> <li>a) Has knowledge of the theories with respect to advising and communication about risk management</li> <li>b) Has the skills to advise<sup>41</sup> about risk management to individuals, teams and organizations</li> <li>c) Can apply advisory skills befitting the context (at senior management and operational levels, for internal and external stakeholders, etcetera)</li> </ul>
FQ 8	Can determine his/her judgment and can consult and communicate about this while taking into account the following items: <ul style="list-style-type: none"> <li>a) a complex (political) force field</li> <li>b) opposite opinions and interests</li> <li>c) within the organization(s) and the surroundings thereof</li> <li>d) a given power structure</li> </ul>
FQ 9	Can reflect on his/her personal learning process and on the position in the everyday work as a professional
FQ 10	Can reflect on his/her personal attitude and position and can maintain or alter these, taking his/her personal normative position and the integrity of the organization into account <ul style="list-style-type: none"> <li>a) Has insight into the moral aspects of decisions and developments</li> <li>b) Has knowledge of the standards of risk management, the professional community and ethics</li> </ul>
FQ 11	Is capable of team work and of leading a team under different circumstances: <ul style="list-style-type: none"> <li>a) Can, in dealing with risks, mobilise the available knowledge and experience in a work situation by facilitating in making this explicit</li> <li>b) Can, as a member or a leader of a (cross-functional) team collaborate goal-oriented, also under the pressures of time and public opinion</li> <li>c) Can, and is open to, recognise and engage in adequate internal and external collaborative arrangements</li> </ul>
FQ 12	Is capable of independently (under supervision) doing research and solving a problem <ul style="list-style-type: none"> <li>a) Has knowledge of and insight into the methods and techniques of research and design (both technical and organizational)</li> <li>b) Can develop an appropriate research question</li> <li>c) Can select and apply appropriate method(s) and technique(s)</li> <li>d) Can analyse complex situations in terms of cause-and-effect relationships</li> <li>e) Can critically assess research reports</li> </ul>

As is demonstrated by the above final qualifications, the key requirements that have been outlined in the previous section are met.

<sup>40</sup> A number of small modifications were made to the formally approved Final Qualifications. These changes will be formalized in the forthcoming round of revisions

<sup>41</sup> Please note that by advice/advise reference is made to the role of an advisor. MRM does not intend to educate risk management consultants



### **Relationship between objective and final qualifications**

Section 2.1.1 has given the objective of MRM as:

*The MRM programme is a postgraduate academic programme that aims at preparing participants, in terms of knowledge and skills, for academic level positions in private and public organizations, for which risk management expertise is required, as (project) managers or internal or external consultants.*

The relationship between the objective of the programme and the final qualifications is as follows:

The MRM is a postgraduate (e.g. FQ 8, FQ 11) and academic (FQ 1, FQ 10, FQ 12) programme which aims at preparing participants, in terms of knowledge and skills (FQ 1-12), for academic level positions in private and public organizations, for which risk management expertise (FQ 1-12) is required, as (project)managers or internal or external consultants (FQ 1-12).

In table 2.1-2 the final qualifications of the programme are compared with the Dublin descriptors. From this, it is shown that the levels of the Master of Risk Management match those of the Dublin descriptors for master programmes.

Table 2.1-2: Dublin Descriptors and programme Final Qualifications for MRM

<p><b>Descriptor 1: Knowledge and understanding</b> Have demonstrated knowledge and understanding that is founded upon and extends and/or enhances that typically associated with Bachelor's level, and that provides a basis or opportunity for originality in developing and/or applying ideas, often within a research context.</p>	
<p><b>In the MRM programme (FQ = Final Qualification):</b></p>	
FQ 1	Has knowledge and insight, on one or more areas, of the theories of risk management, and is capable of and motivated of identifying, following, acquiring and applying new knowledge of these areas.
FQ 2	Has insight in the specific character of risks (and uncertainty), and has knowledge of different types of risks, of the different ways of assessing and controlling risks and of the ways to control financial aspects thereof.
FQ 7	Can advise on risk management <ul style="list-style-type: none"> <li>a) Has knowledge of the theories with respect to advising and communication about risk management</li> <li>b) Has the skills to advise about risk management to individuals, teams and organizations</li> <li>c) Can apply advisory skills befitting the context (at senior management and operational levels, for internal and external stakeholders, etcetera)</li> </ul>
FQ 10	Can reflect on his/her personal attitude and position and can maintain or alter these, taking his/her personal normative position and the integrity of the organization into account <ul style="list-style-type: none"> <li>a) Has insight into the moral aspects of decisions and developments</li> <li>b) Has knowledge of the standards of risk management, the professional community and ethics</li> </ul>
FQ 12	Is capable of independently (under supervision) doing research and solving a problem <ul style="list-style-type: none"> <li>a) Has knowledge of and insight into the methods and techniques of research and design (both technical and organizational)</li> <li>b) Can develop an appropriate research question</li> <li>c) Can select and apply appropriate method(s) and technique(s)</li> <li>d) Can analyse complex situations in terms of cause-and-effect relationships</li> <li>e) Can critically assess research reports</li> </ul>
<p><b>With this, the first descriptor is met</b></p>	
<p><b>Descriptor 2: Applying knowledge and understanding</b> Can apply their knowledge and understanding and problem solving abilities in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field of study; have the ability to integrate knowledge and handle complexity.</p>	
<p><b>In the MRM programme:</b></p>	
FQ 1	Has knowledge and insight, on one or more areas, of the theories of risk management, and is capable of and motivated of identifying, following, acquiring and applying new knowledge of these areas.
FQ 3	Can enhance risk awareness
FQ 7	Can advise on risk management <ul style="list-style-type: none"> <li>a) Has knowledge of the theories with respect to advising and communication about risk management</li> <li>b) Has the skills to advise about risk management to individuals, teams and organizations</li> <li>c) Can apply advisory skills befitting the context (at senior management and operational levels, for internal and external stakeholders, etcetera)</li> </ul>
FQ 10	Can reflect on his/her personal attitude and position and can maintain or alter these, taking his/her personal normative position and the integrity of the organization into account <ul style="list-style-type: none"> <li>a) Has insight into the moral aspects of decisions and developments</li> <li>b) Has knowledge of the standards of risk management, the professional community and ethics</li> </ul>
FQ 11	Is capable of team work and of leading a team under different circumstances: <ul style="list-style-type: none"> <li>a) Can, in dealing with risks, mobilise the available knowledge and experience in a work situation by facilitating in making this explicit</li> <li>b) Can, as a member or a leader of a (cross-functional) team collaborate goal-oriented, also under the pressures of time and public opinion</li> </ul>
FQ 12	Is capable of independently (under supervision) doing research and solving a problem <ul style="list-style-type: none"> <li>a) Has knowledge of and insight into the methods and techniques of research and design (both technical and organizational)</li> <li>b) Can develop an appropriate research question</li> <li>c) Can select and apply appropriate method(s) and technique(s)</li> <li>d) Can analyse complex situations in terms of cause-and-effect relationships</li> </ul>

- e) Can critically assess research reports

***With this, the second descriptor is met***

### **Descriptor 3: Making judgments**

Can formulate judgments with incomplete or limited information, including reflections on social and ethical responsibilities linked to the application of their knowledge and judgments.

#### **In the MRM programme:**

- FQ 4 Is, in judging risks, capable of discriminating and recognising the coherence of the different levels (i.e. own organization, chain consciousness, public level) at which risks demonstrate their existence.
- FQ 5 Can verbally and in writing communicate about risk management:
- a) Can effectively transfer information about risk management, leading to consensus, understanding, acceptance and action.
  - b) Recognises the impact of internal and external communication for the organization and its surroundings and takes this in account in this communication.
- (FQ 7) Can advise on risk management
- a) Has knowledge of the theories with respect to advising and communication about risk management
  - b) Has the skills to advise about risk management to individuals, teams and organizations
  - c) Can apply advisory skills befitting the context (at senior management and operational levels, for internal and external stakeholders, etcetera)
- FQ 8 Can determine his/her judgment and can consult and communicate about this while taking into account the following items:
- a) a complex (political) force field
  - b) opposite opinions and interests
  - c) within the organization(s) and the surroundings thereof
  - d) a given power structure

***With this, the third descriptor is met***

### **Descriptor 4: Communication**

Can communicate their conclusions, and the knowledge and rationale underpinning these, to specialist and non-specialist audiences clearly and unambiguously.

#### **In the MRM programme:**

- FQ 3 Can enhance risk awareness
- FQ 5 Can verbally and in writing communicate about risk management:
- a) Can effectively transfer information about risk management, leading to consensus, understanding, acceptance and action.
  - b) Recognises the impact of internal and external communication for the organization and its surroundings and takes this in account in this communication.
- FQ 6 Can clearly and unambiguously transfer conclusions, and the knowledge, motives and considerations that support these, to a public of specialists and non-specialists
- FQ 8 Can determine his/her judgment and can consult and communicate about this while taking into account the following items:
- a) a complex (political) force field
  - b) opposite opinions and interests
  - c) within the organization(s) and the surroundings thereof
  - d) a given power structure

***With this, the fourth descriptor is met.***

### **Descriptor 5: Learning skills**

Have the learning skills to allow them to continue to study in a manner that may be largely self-directed or autonomous.

#### **In the MRM programme:**

- FQ 1 Has knowledge and insight, on one or more areas, of the theories of risk management, and is capable of and

motivated of identifying, following, acquiring and applying new knowledge of these areas.  
 FQ 9 Can reflect on his/her personal learning process and on the position in the everyday work as a professional

***With this, the fifth descriptor is met***

The University of Twente has agreed with the Technical Universities of Eindhoven and Delft – within the framework of the 3TU Federation – to introduce the Academic Criteria for Bachelor's and Master's Curricula (Meijers c.s., 2006) as an addition to or replacement of the Dublin descriptors. The advantages of these criteria include: inclusion of design competences, clearer distinction between academic and higher vocational training, possibility of including levels of mastery of competences. In developing the final attainment levels of MRM, the above-mentioned criteria were used to check consistency and comprehensiveness.

### **2.1.3 MRM final qualifications and the demands from the scientific discipline and the relevant profession(s)**

In paragraph 2.1.1 we have outlined the requirements from the domain of risk management, whereas in paragraph 2.1.2 we have demonstrated the match between the final qualifications and the Dublin Descriptors for a master programme. Now, we will discuss:

1. Requirements from the scientific discipline.
2. Requirements from the relevant professions.

#### ***Ad 1. Requirements from the scientific discipline***

To compare the aim, final attainment levels and programme of MRM with requirements for a programme in this domain, a number of comparable programmes have been analysed mainly through desk research<sup>42</sup> as was pointed out in section 2.1.1. The following programmes were included in this comparison:

##### ***Nearby programmes:***

- Master of Risk Management, Monash Master of Risk Management Australian Risk Management Unit (ARMU) / Faculty of Business and Economics, Australia
- Master of Risk Management, Caledonian Business Faculty of Glasgow Caledonian University, Scotland
- Postgraduate Programme MSc in Risk Management, University of East London, United Kingdom
- Post-Higher Professional Education programmes BRM (Basic Risk Management education), RRM (Registered Risk Manager education) and MRM (Master of Risk Management), The Hague University of Professional Education, The Netherlands
- Risk Management, Katholieke Universiteit Leuven. Department of Postgraduate Formation (KULAC) in collaboration with Amelior, Belgium

##### ***Other programmes:***

- Master of Security Science & Management (MSSM), Delft Toptech
- Master of Public Safety, Delft Toptech
- Master of Safety, Health & Environment, TU Delft
- Integral Security Management, Nijenrode university
- University programme Enterprise Risk Management (EMERM), a specialisation of the Executive Master (EM) Insurance Studies. Amsterdam Business School, University of Amsterdam
- Master of Information Security Management (MISM), TIASNimbis
- Master of Security in Information Technology (MSIT), TIASNimbis
- Postgraduate program Information Security and Compliance, Erasmus University
- Post-Higher Professional Education programme Auditing and Risk Management, Arnhem en Nijmegen University of Professional Education (HAN)
- Post-Higher Professional Education programme Management of Risk Control & Information Security (MRIS), Arnhem en Nijmegen University of Professional Education (HAN)
- Higher Professional Education programme Risk Management, NIBE/SVV

<sup>42</sup> MRM Benchmark report, Appendix 2.1.1-1. 2009.

- Master of Arts in Risk and Society, University of Kent (UK)
- Master of Science and Technology in Risk Management, University of New South Wales (Australia)
- Master of Technology Management (Risk Management), Swinburne University of Technology (Australia)
- Master of Arts in Financial Risk Management, Simon Fraser University, Segal Graduate Business Faculty (Canada)
- MSc Environmental Health and Safety Risk Management, Neisse University (Poland, Czech Republic, Germany)
- Master Risk Management and Safety Engineering, Lund University (Sweden)
- Master of Science in Public Safety Administration, Lewis University (USA)
- MSc/PgDip in Safety engineering and risk management, University of Aberdeen (UK).

In table 2.1-3 the characteristic features of ‘nearby’ and ‘non-nearby programmes are presented in comparison to the MRM features. This table demonstrates the match with the requirements from the scientific discipline.

Table 2.1-3: Features of benchmark programmes in comparison to MRM (appendix 2.1.1-1)

Final qualification features of benchmark programmes	Final qualifications of MRM
<p>The nearby programmes share a common set of risk management final qualifications:</p> <ul style="list-style-type: none"> <li>• Knowledge and understanding of risk management concepts;</li> <li>• Application of risk management knowledge;</li> <li>• Implementation and execution of risk management;</li> <li>• Identification, analysis and evaluation of risk management tools and methods</li> </ul>	<p>MRM final qualifications include the shared common risk management set of final qualifications, i.e.: FQ 1, FQ 2, FQ 3, FQ 4, FQ 8, to which were added: ethics (FQ 10), communication (FQ 5, FQ 6, FQ 8), research and problem solving (FQ 12), consulting (FQ 7) and personal learning (FQ 9).</p>
Curriculum features of benchmark programmes	Curriculum features of MRM
<p>The ‘nearby programmes’ share a common risk management core consisting of:</p> <ul style="list-style-type: none"> <li>• Knowledge of risk management principles</li> <li>• Identification of risks</li> <li>• Loss control measures (Leuven; risk control)</li> <li>• Risk financing</li> <li>• Organization of risk management</li> </ul>	<p>The MRM core includes the shared common risk management core, to which were added: societal and specialist topics, ethics, communication.</p>
<p>Variations in the characteristics of nearby programmes include (bold typeface texts indicate choices made by the Twente MRM programme):</p> <ul style="list-style-type: none"> <li>• Risk management plan making (KUL);</li> <li>• <b>Exchange experiences</b> (KUL);</li> <li>• <b>Risk (management) communication</b> (HH);</li> <li>• <b>Risk management information</b> (UEL);</li> <li>• Create competitive advantage (KUL);</li> <li>• <b>Crisis management</b> (HH) / Disaster response (UEL);</li> <li>• Synthesis (KUL) / <b>integrated case study</b> (GCU);</li> <li>• <b>Research methodology</b> (GCU);</li> <li>• <b>Increasing risk complexity</b> (Monash);</li> <li>• Formal professional education requirements (Monash);</li> <li>• <b>Specific risk management areas</b> (Monash);</li> <li>• Strong focus on generic academic skills (Monash);</li> <li>• Business continuity (UEL);</li> <li>• <b>Risk management tools</b> (UEL);</li> <li>• Risk perception (UEL).</li> </ul>	<p>MRM choices, below, are also indicated in bold typeface in the column to the left:</p> <ul style="list-style-type: none"> <li>• <b>Exchange experiences</b></li> <li>• <b>Risk (management) communication</b></li> <li>• <b>Risk management information</b></li> <li>• <b>Crisis management</b></li> <li>• <b>Integrated case study</b></li> <li>• <b>Research methodology</b></li> <li>• <b>Increasing risk complexity</b></li> <li>• <b>Specific risk management areas</b></li> <li>• <b>Risk management tools</b></li> </ul>
<p>Additions from ‘non-nearby’ programmes to the benchmarking are (again, bold typeface texts indicate choices made by the Twente MRM programme):</p> <ul style="list-style-type: none"> <li>• <b>Legal / regulation</b> (NIBE/SVV);</li> <li>• Integration of technology and governance (NL-2);</li> <li>• Integrated management system (NL-3);</li> <li>• How to place safety on the agenda in the <b>boardroom</b> (NL-3);</li> <li>• Visionary skills (NL-3);</li> </ul>	<p>MRM choices, below, are also indicated in bold typeface in the column to the left:</p> <ul style="list-style-type: none"> <li>• <b>Legal / regulation</b></li> <li>• How to place safety on the agenda in the <b>boardroom</b></li> <li>• <b>Multidisciplinary approach</b></li> <li>• <b>Constructive collaboration with specialists</b></li> </ul>

<ul style="list-style-type: none"> <li>• Novel interdisciplinary vision on safety (NL-4); <b>multidisciplinary approach</b> (NL-5);</li> <li>• <b>Constructive collaboration with specialists</b> (NL-6);</li> <li>• <b>Act as an intermediary between board of directors and departments</b> (NL-6);</li> <li>• <b>Public and/or private</b> (NL-4);</li> <li>• Policy development (NL-6).</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Act as an intermediary between board of directors and departments</b></li> <li>• <b>Public and/or private</b></li> </ul>
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### Final qualifications in relation to the demands of scientific education

The final qualifications meet the general demands of scientific education. This is reflected in several final qualifications, as demonstrated in table 2.1-4.

Table 2.1.4: MRM final qualifications and the general demands of scientific education

General demands of scientific education <sup>43</sup>	MRM final qualifications (see paragraph 2.1.2)
Analytical approach to problem-solving	FQ 12
Ability to submit an argument in the social sciences to critical appraisal	FQ 6
Analytical and critical way of thought and ability to apply logical reasoning	FQ 2, 4, 6, 7, 8, 9, 10, 12
Openness to inter-, multi- and transdisciplinary cooperation	FQ 11
Ability to transpose academic knowledge and expertise into social, professional and economic contexts	FQ 1, 7, 8, 9, 10
Reflection on one's own style of thought and working methods and readiness to take the necessary corrective action	FQ 9
Acquaintance with the standards of academic criticism	FQ 12
Awareness of the ethical, normative and social consequences of developments in science and technology	FQ 10
Using academic concepts in generating / developing solutions to problems	FQ 1, 7, 8, 12

### Qualifications for independently conducting research or to solve multi- or interdisciplinary problems in a professional practice requiring academic education

Section 2.1.2 describes the final qualifications of MRM. From that section it clearly follows that the programme meets this requirement. Most notably:

- FQ 1: Graduates have knowledge of and insight in risk management theories and can apply these;
- FQ 12: Graduates can conduct research and solve problems.

### Ad 2. Requirements from relevant professions

The match between MRM and requirements from practice was established in two ways: (i) the benchmark study (appendix 2.1.1-1; see also section 2.1.1) has generated a set of requirements from the relevant professions. The MRM final qualifications were (in part) constructed from these requirements, assuring their match; (ii) the outcome of the 2008 market survey (appendix 2.1.1-2; see also section 2.1.1) was a confirmation of the plans for the MRM programme.

As is demonstrated by the final qualifications (table 2.1-1), the requirements from the scientific discipline and the professional field are met.

<sup>43</sup> Source: QANU Protocol version 3.1 (February 2004)

## 2.2 PROGRAMME

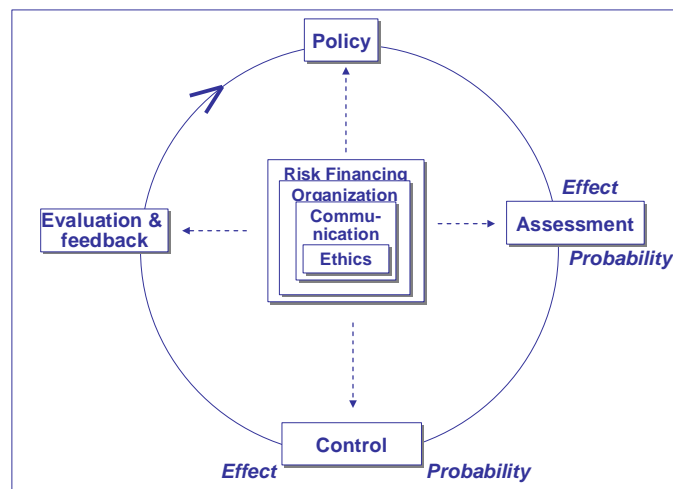
### Introduction

This section provides information on the MRM programme. First, the programme structure is outlined here. Subsequently, the next sections provide more details.

The profile which reflects the chosen position in the domain of risk management has the following characteristics:

- The comprehensive programme focuses both on the (semi)public sector (e.g. government organizations, utilities, hospitals) and on the private sector (e.g. the manufacturing industry, business services industry, consultancy firms);
- The organization level and management perspective are central to the programme;
- Graduates need to have insight into societal risks and business risks with their internal and external components: a societal risk like global warming may impact an organization as may the organization cause risks for society (e.g. disasters in the chemical industry). Business risks, too, can be internal or external (from its business surrounding, e.g. new competitors, failing suppliers, declining credit line, declining demand, and risks that occur within the context of networks like extended enterprises and supply chains).
- Graduates need to have understanding of and insight into various specialistic risk management themes in order for them to develop an adequate picture - with or without interaction with specialists. Examples are financial risks, project risks and technological risks;
- The programme initially (see Chapter 3, Outlook) focuses on The Netherlands <sup>44</sup> in its international context, in view of growing globalisation;
- The risk management cycle is the 'backbone' of the programme. Unlike the cycle typically found in the literature (e.g. Claes <sup>45</sup>) risk financing has not been positioned as a step in the cycle, representing the coverage of risks by insuring, but in a central position; this signifies that risk financing is an activity in several steps of the cycle, mainly in Control, i.e. cost-benefit-related activities of risk control options. In addition the risk management cycle used in MRM includes attention to risk communication and ethics, based on inputs from the market survey, and risk organization. This cycle is depicted in figure 2.2-1.

**Figure 2.2-1. The risk management cycle as used as the backbone in MRM**



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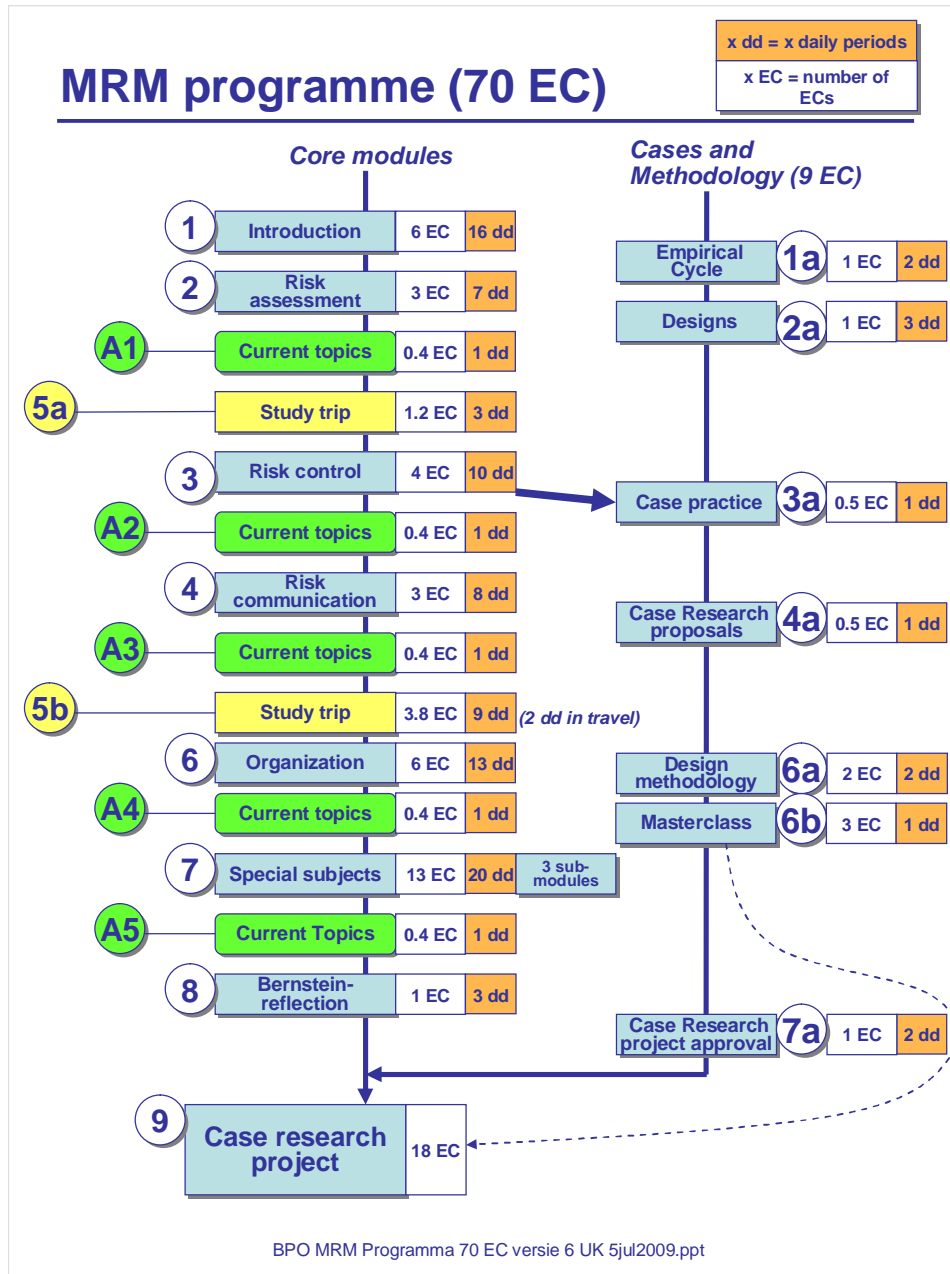
<sup>44</sup> The reader is referred to Chapter 3, Outlook, for plans regarding the geographic coverage of the programme

<sup>45</sup> Paul Claes, Risicomanagement. Noordhoff Uitgevers, 4th ed., 2008

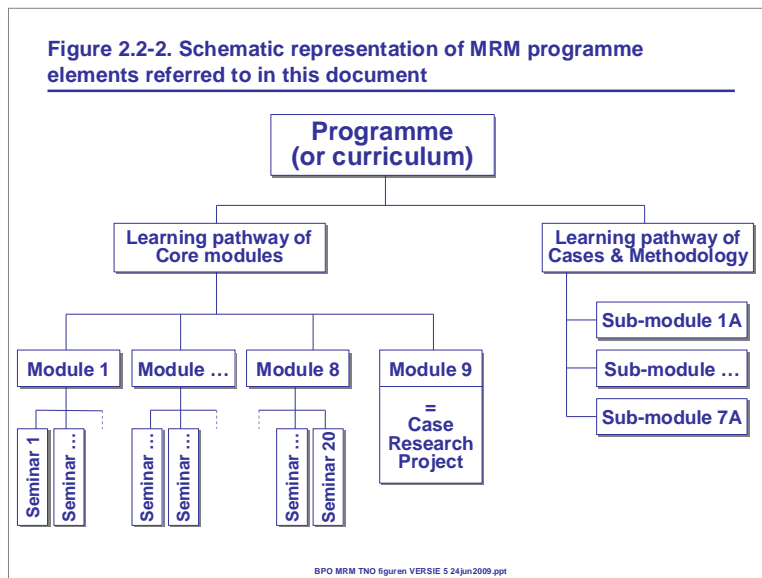


The programme is depicted in figure 2.2-1. A detailed overview can be found in Appendices 2.2-1a and 2.2-1b. The programme has a size of 70 European Credits (EC) and is delivered in parttime, in line with the postgraduate nature of MRM. The set-up of the programme in modules and seminars is depicted in Figure 2.2.-2

Figure 2.2-1: Overview of structure and modules of the MRM programme







The main structure of the programme consists of two parallel lines of study: the **core modules** and the **cases & methodology**. The final part of the programme consists of the case study period.

The **core modules** shape the main part of the programme. In these core modules, beginning with an Introduction module, the various elements of the risk management cycle are treated: assessment, control - including risk financing - , communication and organization - including ethics. Implementation of risk management is treated in the organization module, as well. Interwoven into this learning pathway are a Dutch and international study trip and five current topics lectures of one daily period each. In the current topics lectures, leading experts cover high visibility newsworthy issues, like the lecture on airtraffic risk and crisismanagement on June 4, 2009 by Dr. Hans Heerkens and the November 5, 2009 lecture by the former National Coordinator of Terrorism Control (NCTb), Mr. Tjibbe Joustra. After the risk management cycle, a number of compulsory specialised topics are treated in the module Special Subjects. These are: (1) Technological Risk Management, (2) Organizational Special Subjects and (3) Financial and Legal (aspects of) Risk Management. In the Organizational Special Subject, organization of decision making is covered in the topic Project Risk Management.

In the eighth module, the 'Bernstein reflection', students reflect on the programme they have taken to that point and on their own working environment experiences with risk management by using the Peter L. Bernstein book *Against the Gods*. Next to this, the book by Vaughan, titled *Risk Management*, is the general textbook of the core modules. Books by Dooley and by Drennan & McConnell are used for research methodology and organizational topics, respectively. For design methodology, a book by Van Aken c.s. is used. Furthermore, additional literature is used, mainly in the form of readers, papers, books or other material. This additional literature is also placed into the electronic learning environment of the programme.

The ninth and final module of the core modules learning pathway is the **case research project**. This module is preferably executed in the students' working environment. The programme management will make a small collection of case research project outlines available for students who consider it unfeasible to do the case research project in their own working environment. Students are prepared in two ways for the execution of their case research project. First, the learning pathway of **cases & methodology** prepares students to use methodology for scientific research including the development of cases. To this end, cases are (also) provided by module 3, risk control. Furthermore, students prepare their choice and proposal development of their case research project in submodules 4a, 6b (a 'Masterclass' in which students enhance their academic capabilities by e.g. interacting with selected researchers who present relevant state-of-the-art research; review an academic paper or book; visit a research organization (e.g. the Research Council for Safety); the dotted arrow between the masterclass and the Case research project signifies that the Masterclass continues during the Case research project) and 7a. And finally, a substantial design methodology submodule [6a] is included in this learning pathway. Please note that the masterclass will partly continue during the Case Research project period as methodological support for students during two group meetings and individual consultation as required.

At the start of the programme the students will each give a presentation about risk management in their own organization, also describing the degree of maturity of the risk policy. This, together with a number of lecturers from the professional field and two study trips to visit risk management organizations will contribute to the practical orientation of the programme. As to the academic level: most MRM lecturers will prescribe articles and book chapters for the students to study.

MRM lecturers include both UT staff and non-UT staff. Examples of UT staff: Prof. mr. Pieter van Vollenhoven holds the chair as 'practice professor' of Risk Management and is both nationally and internationally closely involved in safety care. Prof. Peter B. Boorsma holds the chair on Public Finance and has longstanding experience in risk management as well. He is the chairman of the National Network of Risk management and the programme leader (scientific director) of MRM. He currently supervises two PhD students on risk management topics. Prof. dr. ir. Olaf Fisscher is a former chairman of NNK and holds the chair of Organization Studies and Business Ethics. Prof.dr. ir. Joop Halman holds the chair on Innovation in the Construction Industry and is chairman of the scientific advisory council of PRIMO<sup>46</sup>. A continuous career line of prof. Halman is project risk management. Dr. Jan Gutteling is Associate Professor in the department of Psychology and Communication of Health and Risk.

Examples of non-UT staff include Drs. Geert Haisma who is CEO of the Netherlands' consultancy bureau for risk management (NAR) with branche offices in Enschede and Utrecht. Other non-UT lecturers are from e.g. AkzoNobel, Ernst & Young and Marsh. Dr. Menno van Duin is both lecturer at Erasmus University Rotterdam and programme dean at FIMV-Nibra. Dr. ir. Martin van Staveren (Deltares) lectures at the Technical University of Delft. It is the programme's ambition to involve other non-UT academic lecturers as well.

Postgraduate education is a form of adult education. MRM students already have a higher education diploma en several years of professional experience (this will be covered in more detail in section 2.2.5). The MRM programme is adapted to this, an example being that an important principle of MRM is that students learn from and with each other. Also, the programme is evidently provided in parttime and has a small scale of in between 12 and 25 students per cohort. And last but not least MRM is a programme that balances academic development and application and professional focus.

### ***Technological risks***

The management of technological risks which has already been introduced in section 2.1.1 is covered in the programme via the following topics:

- In module 1, emerging technological risks are discussed in the context of societal characteristics and the risk society concept. Also, a guest lecturer from a leading international chemicals and coatings company, AkzoNobel, discusses safety, health and environmental management at the policy and operational levels;
- In module 2 and 3, examples are discussed of e.g. chemical technology risk management;
- Module 4 discusses risk and crisis communication mainly within the context of emerging technology risks;
- One of the submodules of Special Subjects is entirely devoted to technological risk management. In that submodule, an overview of technologies and technological risk management is given, and a number of technology risk areas are specifically discussed: Information and Communication Technology, Nanotechnology and Nuclear energy for civil purposes.

In addition, civil aviation technology risk management was discussed in the June 4, 2009 Current Topics seminar.
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## **2.2.1 Requirements of academic education**

The way in which the programme plans to meet the criteria for academic education is described in the following three points:

1. Relationship between education and research and between education and developments in academic disciplines / recent theories
2. Research skills
3. Relationship with actual practice in the professional field.

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<sup>46</sup> Public Risk Management Organisation

### **Ad 1 Relationship between education and research and between education and developments in academic disciplines / recent theories**

The University of Twente conducts a broad range of research that is relevant to the MRM master programme. Appendix 2.2.1-1 provides an overview. The university has six *research institutes*, including IGS, the Institute of Governance Studies, and CTIT, the Centre of Telematics and Information Technology. Furthermore, research is conducted under the auspices of *3TU Research Centres* such as the 3TU.Centre for Ethics and Technology and within *departments* of the Faculties.

The large majority of subjects is taught by members of staff who actively contribute to the development of scientific knowledge in their area, participate in national and international research programmes and are part of or have scientific networks in this field. Starting from their research expertise, lecturers discuss appropriate scientific theories and they use modern text books and recent journal articles. Also, they discuss their (relevant) research projects with the students, for instance to give examples or illustrations. See also the CVs (appendix 2.2.1-2).

In the programme, a range of theories and concepts is dealt with. Table 2.2-1 provides an overview per module.

Table 2.2-1 Theories, concepts and instruments per MRM module

<b>MRM Module</b>	<b>Theories, concepts and instruments</b>
1. Introduction	<p><i>Theories</i></p> <ul style="list-style-type: none"> <li>○ Cultural theory and Social Constructivism</li> <li>○ Situation Crime Prevention including theoretical framework (Clarke and Cornish)</li> <li>○ Crime pattern theory</li> <li>○ Rational Choice theory</li> <li>○ Normative Decision Theory</li> <li>○ Utility Theory / Analysis</li> </ul> <p><i>Concepts &amp; models</i></p> <ul style="list-style-type: none"> <li>○ Risk Society concept (Beck, Giddens, Douglas, Wildawsky)</li> <li>○ Concept of New Risks</li> <li>○ Concept of Manufactured Uncertainty</li> <li>○ Precautionary Principle (ALARA)</li> <li>○ Corporate governance concept</li> <li>○ Performance management concept</li> <li>○ Product Stewardship concept</li> <li>○ Human Behaviour Model</li> <li>○ Resilience principle</li> <li>○ Water Footprint concept</li> <li>○ Concepts of Emergency Response, Business Continuity, Crisis Management</li> <li>○ Capital Asset Pricing Model (CAPM) - Treynor, Sharpe, Lintner (1961-1965)</li> </ul> <p><i>Instruments</i></p> <ul style="list-style-type: none"> <li>○ Various risk management instruments (e.g. mindmap, Bow Tie, TriPod Beta)</li> </ul>
2. Risk Assessment	<p><i>Theories</i></p> <ul style="list-style-type: none"> <li>○ Probability Theory and Models</li> </ul> <p><i>Concepts &amp; models</i></p> <ul style="list-style-type: none"> <li>○ Systems Safety</li> <li>○ Strategic Risk Management, including 'Trojan Horses', i.e. conflicts or inconsistencies resulting from incorrect strategic choices</li> <li>○ Concept of probability distribution</li> <li>○ Brauchlin's four laws on interpretation of information</li> <li>○ Risk appetite concept</li> <li>○ Simulation models</li> </ul> <p><i>Instruments</i></p> <ul style="list-style-type: none"> <li>○ Risk Management Information Systems (RIMS)</li> <li>○ Various risk management instruments (e.g. Bow Tie, Fault Tree, Event Tree, HAZOP (HAZard and Operability), PERT (Program Evaluation and Review Technique), CPM, DROM, Cause-and-Effect diagrams, Risk Profiles, Forecasting and Probability Analysis, Delphi technique, Real (strategic) Options Analysis)</li> </ul>
3. Risk Control	<p><i>Theories</i></p> <ul style="list-style-type: none"> <li>○ Heinrich's domino theory</li> <li>○ Energy-release theory of accident causation and control (William Haddon)</li> <li>○ Theory X, Theory Y (Douglas McGregor, 1960)</li> <li>○ Prospect Theory (Kahneman &amp; Tversky, 1979)</li> <li>○ Markowitz' Modern Portfolio Theory (1952)</li> </ul>

<b>MRM Module</b>	<b>Theories, concepts and instruments</b>
	<ul style="list-style-type: none"> <li>o Neo-Classical Finance Theory (NCFT)</li> <li><i>Concepts &amp; models</i></li> <li>o Systems Safety Approach</li> <li>o Motivation process (Head, adapted from Schermerhorn et al., 1982)</li> <li>o Concepts: Alternative Dispute Resolution (ADR); Liability (legal, contractual, managerial); claim culture; Human Health Potential</li> <li>o ALARA and ALARP principles</li> <li>o Safety culture concept, Westrum's maturity model (and Shell's "Hearts and Minds" project) (based on Reason)</li> <li>o OSHA</li> <li>o Perfect markets concept</li> <li>o Concepts of Social / Legal / Economic Licence; Beyond Compliance concept</li> <li>o Alternative Risk Transfer concept</li> <li>o Capital Asset Pricing Model (CAPM) - Treynor, Sharpe, Lintner (1961-1965)</li> <li>o Business Case concept</li> <li>o Concept of Trust</li> <li>o Concepts of Return on Equity (ROE) and Economic Value Added (EVA)</li> <li>o Primary Insurance, Alternative Risk Financing concept</li> <li>o Retention and Transfer concepts</li> <li>o Resilience concept</li> <li>o Concepts of financial results representation (RAROC (risk adjusted return on capital), EIC (Economic Income Created), Shareholder value</li> <li>o Risk Appetite</li> <li>o Environmental Risk concept; Clean Development Mechanism (CDM)</li> <li>o Concept of Service Level Agreement (SLA)</li> <li>o Corporate Social Responsibility concept (CSR)</li> <li>o Good Regulatory Practice concept</li> <li>o Audit Risk Model</li> <li>o Decision Models (Cash flow, Profitability)</li> <li>o Asset / Liability models</li> <li>o Cash Flow Analysis</li> <li>o Public-private partnership</li> <li>o The Law of Torts (person's rights violation)</li> <li>o Concepts of Negligence, Liability, Immunity</li> <li><i>Instruments</i></li> <li>o Technique of Operations Review, TOR (D.A. Weaver)</li> <li>o Future loss severity projection</li> <li>o Total cost of risk (TCOR), Value-at-Risk (VaR), Scenario Analysis, Stress Testing, (Monte Carlo) simulation</li> <li>o Risk Indicators</li> <li>o Risk Control monitoring standards</li> <li>o Instruments, e.g. Hazard Mode and Effect Analysis (HMEA), Fault-Tree Analysis (FTA) , Program Evaluation and Review Technique (PERT)</li> </ul>
4. Risk Communication	<p><i>Theories</i></p> <ul style="list-style-type: none"> <li>o Risk and Media Theory</li> <li>o Situational Crisis Communication Theory</li> <li>o Theories: 7-I model of Conflict Diagnosis, Dual Concern Theory, Theory of Conglomerated Conflict Behaviour, Table of Ten, High/Low Context Communication</li> </ul> <p><i>Concepts &amp; models</i></p> <ul style="list-style-type: none"> <li>o Psychometric Paradigm Model</li> <li>o Social Representation Model</li> <li>o Social Amplification Model</li> <li>o Affect Heuristic Model</li> <li>o Concepts of Risk Perception, Risk Attitude (Risk Acceptance), Conferment of Meaning, Cognition and Affect, Trust</li> <li>o Framework of Risk Information Seeking</li> <li>o Organizational Links Model</li> <li>o Crisis Communication and Reputation</li> <li>o Concepts of Crisis Communication, Attribution of Responsibility, Crisis Communication Response, Organizational Reputation, Handling the Press, Crisis Communication and Journalists</li> <li>o Concepts: Risk and Conflict Diagnosis, Conflict Management</li> </ul>
5. Study trips	<i>Depends on subjects agreed upon with study trip hosts</i>
6. Organization	<p><i>Theories</i></p> <ul style="list-style-type: none"> <li>o Theories of innovation management and change management (e.g. the CIMO logic (Denyer et al.))</li> </ul>

<b>MRM Module</b>	<b>Theories, concepts and instruments</b>
	<i>Concepts &amp; models</i> <ul style="list-style-type: none"> <li>○ The Contingency approach</li> <li>○ Resource-based view</li> <li>○ Modernistic and post-modernistic perspectives on organizations</li> <li>○ Structure - action approach</li> <li>○ Process models of organizations</li> <li>○ The stakeholder approach (Freeman)</li> <li>○ The personalistic view on organizations (in which the perspective is that responsibility is seen as a Multi-actor/Multi-level issue)</li> <li>○ As to the learning organization: a.o. Argyris &amp; Schön and Senge</li> </ul>
7. Special topics	<i>Theories</i> <ul style="list-style-type: none"> <li>○ Diffusion of Innovation (DOI) (Rogers, 1985)</li> <li>○ Prospect theory (Kahneman &amp; Tversky)</li> <li>○ Escalation of commitment theory (Boulding; Calantone)</li> <li>○ Group think and Risky shift (Janis)</li> <li>○ Bounded rationality en system theory (Simon)</li> <li>○ Crisis management theory (Rosenthal and others)</li> <li>○ Decision theories (Simon, 1986)</li> <li>○ Core-periphery concept (Atkinson)</li> <li>○ Portfolio Theory</li> <li>○ Normative theories regarding setting of legal standards (law-making principles; appropriateness doctrine), legitimacy &amp; accountability (politico-legal positions regarding the relationships between government, market/society and civilian) en liability (iustitia commutativa &amp; iustitia distributiva).</li> </ul> <i>Concepts &amp; models</i> <ul style="list-style-type: none"> <li>○ Constructive Technology Assessment (CTA)</li> <li>○ Technology Acceptance Model (Davis, 1989)</li> <li>○ USE IT (Spil &amp; Schuring, 2004)</li> <li>○ Modeling of Internal Control (Jans, 1994)</li> <li>○ Net Present Value</li> <li>○ Asset Pricing</li> <li>○ Cost of Capital</li> <li>○ Long-term Financing</li> </ul>
8. Bernstein reflection	Prospect theory
A. Current topics	<i>Depends on subjects agreed upon with guest lecturers</i>
Learning pathway Cases & Methodology	<i>Theories</i> <ul style="list-style-type: none"> <li>○ Example: Prospect theory</li> <li>○ Theory of Miles and Snow on competitive strategies (in Song et al.)</li> <li>○ Competitive Capability theory (in Song et al.)</li> </ul> <i>Concepts &amp; models</i> <ul style="list-style-type: none"> <li>○ Structure and preconditions for empirical theories (concept)</li> <li>○ Concept of Ethical Conduct for Research (UNESCO)</li> <li>○ Design cycle (Van Aken, Van Strien)</li> </ul>
9. Case research project	<i>Depends on subject of Case Research project</i>

The scientific quality of the university's research programmes is regularly assessed by independent external committees. See appendix 2.2.1-1 for details.

The interaction between (parts of) the programme and research is established on three levels:

- § Research is used as a source for examples in the modules
- § Research papers are part of the module materials
- § Research assignments during the modules and the final thesis are derived from or are part of the ongoing research activities of the department

The relationships between programme elements and research using this classification are listed in table 2.2-3.

Table 2.2-3: Relationships between programme elements and research

Programme item	Research as example	Research papers as module material	Research-related assignments
1. Introduction	X	X	Not applicable
2. Risk Assessment	X		
3. Risk Control		X	
4. Risk Communication	X	X	
5. Study trips			
6. Organization	X	X	
7. Special topics	X	X	
8. Bernstein reflection			
A. Current topics			
Learning pathway Cases & Methodology	X	X	X
9. Case research project			X

*Legend: X = included in programme item*

Some specific examples of the relationship between the MRM programme and (ongoing) research include:

- Situational Crime Prevention (prof. Junger)
- Water Footprint concept (prof. Hoekstra)
- The ability to cope and awareness in reducing flooding risks (prof. Hoekstra)
- Bending the rules of a safety management system (drs. Haisma)
- Theory of Miles and Snow on competitive strategies (in Song et al.) (dr. Geurts)
- The importance of trust in responses to risks (dr. Ter Huurne, dr. Gutteling)
- Risk communication (dr. Gutteling)
- Conflict management (dr. Giebels)
- Project risk management in large infrastructure construction (prof. Halman)
- Implementation of risk management (dr. Van Staveren)
- PERT versus Monte Carlo Simulation (dr. Geurts/drs. Haisma)
- Ethics and integration of management systems (prof. Fisscher)
- Constructive Technology Assessment and Nanotechnology (dr. Van den Berg + specialist t.b.d.)

### **Ad 2 Research and design skills**

The programme is aimed at developing the students' research and design skills. This is covered in the cases & methodology line of study discussed earlier in this report. Design-based problem solving is the subject of a separate submodule; also a research Masterclass is programmed to support students in developing their Case research project. In addition to this, library skills and scientific ethics are part of the programme (drs. Hommes in Module 1, prof. Fisscher in module 6, respectively).

### **Ad 3 Relationship with actual practice in the professional field**

There are many connections with actual practice in the professional field. The main ones are:

- § Students get insight into actual practice through information from fellow classmates about their professional, cultural or other experience, as MRM is a post-experience programme.
- § A fair part of the teaching staff consists of members from the professional field, e.g. from NAR (a risk management consultancy organization), AkzoNobel (chemical company), TNO (a major Dutch technology research and consultancy organization), Marsh (insurance firm) and Ernst & Young (accountancy firm).
- § Several of the university lecturers also operate as practitioners. Others have strong relationships with professional practice, through project or applied research work.
- § The programme offers several guest lectures and excursions. The aim is to invite five guest speakers and to provide two excursions that match with the topics discussed in class during the programme. The first, local (Dutch) excursion could e.g. visit public and private organization(s) in the Enschede or Rotterdam area and the international excursion could inform the students on public and private risk management practices in the UK, which country is regarded to be a forerunner in this field.
- § Cases and other examples dealt with by either professional field lecturers or university lecturers are frequently practice-based.
- § The Design-based problem solving topic is taught in a combination of classroom study and fieldwork during which students visit relevant public and/or private organizations.
- § In module 3 the students will work with specialised risk management software from NAR.



- § The Case study research project is preferably to be executed within the organization where the student is employed. Applicability of this criterion is verified during the intake procedure, depending on preferences and interests of the students. Most research projects have an empirical part in which practice is studied using for example case studies or interviews.

## 2.2.2 Relationship between aims and objectives and contents of the programme

The programme, with its specific modules and sub-modules, is clearly related to the aims and objectives as reflected in the final qualifications. The instructional concept fits the aims and character of the programme and serves as the bridge between aims and form. Finally, the assessment of modules is in line with the final qualifications and the instructional concept of the programme. These are discussed in more detail below:

1. Programme and final qualifications
2. Instructional concept: link between aims and form
3. Assessment and final qualifications

### ***Ad 1 Programme and final qualifications***

The programme elements all contribute to meeting the final qualifications of the programme, and all final qualifications are addressed and met through the programme elements. The relationships between the programme elements and the final qualifications are indicated in table 2.2-4. Full module descriptions are included in Appendix 2.2-1a. Table 2.2-4 shows that the final qualifications of MRM are translated appropriately into the programme elements.

While in most programme elements the focus is on specific knowledge and skills, the aim is also to install a scientific and / or professional attitude in the MRM students, for example critical and analytical thinking about problems and potential solutions<sup>47</sup>.

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<sup>47</sup> Please note that 'attitude' (in Dutch: houding) is not included in the current set of final qualifications. Some modifications to the final qualifications will be made in the next revision, i.e. in September 2010

*Table 2.2-4: Contribution of the modules to the Final Qualifications  
(see section 2.1.2 for full Final Qualifications)*

▼ Modules ► Final qualifications	1	2	3	4	5	6	7	8	9	10	11	12
Introduction to risk management (module 1)	XXX	XXX	X	X	--	--	--	X	--	--	--	--
Risk assessment (module 2)	XXX	XX	X	XX	XX	XX	--	XX	X	XX	X	XX
Risk control (module 3)	X	XXX	X	XX	X	X	--	X	--	X	--	--
Risk communication (module 4)	XXX	XX	XX	XX	X	--	--	X	--	X	--	--
Study trips A and B (module 5)	X	X	XX	X	XXX	XXX	XX	X	--	X	XXX <sup>48</sup>	X
Organization of risk management (module 6)	XXX	--	--	XXX	XX	XXX	X	XX	--	XXX	--	XX
Special subjects (module 7) <sup>49</sup>	X	XX	X	XX	XX	X	X	X	--	--	--	X
Bernstein reflection (module 8)	XXX	XX	--	--	XX	--	--	--	XXX	--	--	--
Cases and Methodology (submodules 1a – 4a + 6a+ 7a)	XX	X	X	X	XX	XXX	XX	XX	XXX	XXX	XX	XXX
Current topics (module A)	X	XX	XX	XX	XXX	XX	--	--	--	X	--	XX
Case research project	* <sup>50</sup>			*		*		*	*			*

### **Ad 2 Instructional concept: link between aims and form**

The instructional concept fits the objective and character of the programme and the characteristics of the inflow.

As stated before, the MRM programme is a postgraduate programme that aims at preparing participants, in terms of knowledge and skills, for academic level positions in private and public organizations, for which risk management expertise is required, as (project)managers or internal or external consultants.

Next to the objective of the programme, the characteristics of the participants are also an important consideration. Participants in MRM are initially from The Netherlands. They generally enter the programme with several years of relevant work experience and a relevant bachelor diploma (higher professional education or academic). Many have some previous knowledge and experience in the field of risk management. In line with the philosophy of the Faculty of Management and Governance, student learning in MRM clearly also involves inter-student interaction. Examples of this are the ten minute student presentations on their experiences in risk management within their employer organization in seminar 2 of module 1, Introduction to Risk Management.

The programme is strongly interdisciplinary in nature, just like the object of study - risk management - itself. During the Case research period participants can put more focus on their specific points of interest. Thus, one can expect a broad range in (thesis) topics.

Based on the above, the core instructional concept is stated as follows:

<sup>48</sup> Submodule 5A, the Dutch study trip, includes team consulting assignments, as will submodule 5B

<sup>49</sup> Average score of constituting sub-modules. See appendix 2.2.1a

<sup>50</sup> \* signifies: depends on actual research project.



*Develop professional knowledge and skills of participants through active learning at an academic level, taking into account the (educational and professional) backgrounds of the participants.*

This is translated into the following instructional considerations that are at the basis of the programme:

1. Promotion of active learning by students
2. Building on existing knowledge, experiences, skills and professional backgrounds of student
3. Structured development of knowledge and skills).

*Ad 1. Promotion of active learning by students*

Characteristic of the instructional approach is a strong link between theory and practice. This calls for active learning, and teaching methods that enable this (see table 2.2-5 for the main teaching methods used). Practice-oriented application of concepts is used to teach participants (how) to use them in practice and to reflect upon the context in which tools and concepts are or can be used. This, in turn, gives rise to discussion in class, in which participants learn from each other and from the situation and solution strategies used in various organizations. Active learning by students is promoted by including e.g. assignments, workshops/interactive classes, cases and the Case research project. Also, the learning pathway for research skills is an important way to promote active learning.

In view of the postgraduate nature of MRM, many programme elements specifically use the application of theory and concepts to provide a link to the employer organization of students. Some examples include: students present the status quo of risk management within their employer organizations during *seminar 2 (module 1)*, for which they use theory discussed and a maturity model provided. Several lecturers, most notably the lecturers given by non-UT lecturers, provide theory and practice of specific topics, e.g. *risk management in the chemical industry (seminar 2 of module 1)*. Cases, like those in *modules 2 and 3*, combine theory and practice. The *Case research project* is preferably to be carried out by students in their own employer organization.

*Ad 2. Building on existing knowledge, experiences, skills and professional backgrounds of students*

As a post-experience programme, MRM focuses on providing ways to build on the existing knowledge, experiences, skills and professional backgrounds of students. This allows students both to reflect on their own knowledge and skills and to learn from those demonstrated by other students. Thus, students enhance their knowledge and skills during the programme to enable them to effectively proceed their careers. The programme caters for this in a number of ways, e.g. through discussions, through student presentations, and through intensive cooperation between students in various assignments and projects.

Transfer (in the educational meaning of the word), i.e. the application of knowledge or skills from one area to another<sup>51</sup>, is an important issue for the programme. The students all are professionals in their own fields, and need to incorporate newly acquired knowledge and skills in their existing base of knowledge and skills. This pertains to being able to apply new concepts to their own professional contexts and to generalise from their own professional experiences. Transfer is being operationalised in the programme, e.g. by having students prepare and deliver a brief presentation on their own organization's risk management, using a risk management maturity model. Also, the Bernstein reflection, module 8, plays an important role in establishing transfer. In examination, too, transfer is a topic. Prof. Boorsma's first question in the module 1 exam is an example of this: 'write a brief essay on the concept of risk (...) what other concepts or elements play a role in the description? Mention a few categorizations. Which categorization according to you is most relevant to your organization and why?'

As a result of points 1 and 2, student cohorts are limited in size: the formal minimum number (published in the programme brochure) is twelve, and the maximum is twenty-five students.

*Ad 3. Structured development of competencies*

As depicted earlier, the main outline of the programme consists of three stages: Core modules, Cases & Methodology and Case research project. The principle underlying this is that students need to first broaden and deepen their content knowledge, to subsequently apply this knowledge finally in the Case research

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<sup>51</sup> See e.g.: Guile, D. & Young, M. (2003) Transfer and transition in vocational education: some theoretical considerations. In Tuomi-Gröhn, T. & Engeström, Y (Eds), *Between school and work: new perspectives on transfer and boundary-crossing*. Amsterdam: Pergamon, pp. 63-81

project. The course work stage also contains the learning pathway of research and design skills development (Cases & Methodology), on which students build the Case research project, as was also shown in figure 2.2-2.

Table 2.2-5 details the main teaching methods. This table also contains details on assessment, an item which will be covered fully in the next sub-section.

*Table 2.2-5: Programme items versus instructional concept: teaching methods (excluding self study) and assessment*

Item	Teaching methods								Assessment <i>(see last line of table for key on abbreviations)</i>
	lectures	Assignments & feedback during lectures (incl. roleplay)	Individual Assignment	Group assignment	Student presentation(s)	Discussion sessions	Case study (C) / excursion (E)	Reflection	
Introduction to risk management	X	X	X	X	X	X		X	WE
Risk assessment	X	X	X			X	C		1. WE 2. PES
Risk control	X	X	X			X	C		1. WE 2. PES
Risk communication	X					X		X	WE
Excursions 1 and 2	X	X		X			E	X	PES
Organization of risk management	X				X	X			1. PES 2. Participation in seminars (in Dutch: werkcolleges)
Special subjects	X	X	X			X	X		1. WE 2. PES (including reviews and assignments)
Bernstein reflection			X		X			X	PES
Cases and Methodology	X	X	X	X		X			1. WE 2. PES 3. Peer-review by co-students
Current topics	X		X					X	Participation <sup>52</sup> , PES
Case research project							CRP		CRMA
Assessment descriptions below correspond to Student Statute (see Appendix 2.2.2-2)									
WE	=	Written exam							
VE	=	Verbal exam							
PGE	=	Practical group exercise; written reporting per group and (as far as possible) individual assessment of the way in which the student has participated in the group's activities;							
PES	=	Practical exercises and written reporting thereof;							
PAWE	=	Practical exercise or assignment, written and/or verbal reporting thereof, written exam. The test can only be taken if the practical exercises are carried out and if the reporting thereof has been assessed as sufficient.							
PAVE	=	As PAWE, but in principle a verbal exam;							
GSS	=	Guided self study							
TBDP	=	To be decided by the graduation professor							
CRMA	=	Compliant to the rules for the master assignment (i.e. the Case research project)							

The programme has a total of 350 hours of contact time (in seminars) on a total of 1456 hours during the coursework period (modules 1 through 8 plus modules A (Current topics) and CM (Cases and Methodology)).

### **Ad 3 Assessment and final attainment levels**

The topic of assessment will be covered via the following seven aspects:

- 3.1 Examination Committee
- 3.2 Assessment methods
- 3.3 Assessment of research project

<sup>52</sup> This is has been changed to include PES. See sub-section 3.4

- 3.4 Assessment in relation to final qualifications
- 3.5 Processing of exam results and feedback
- 3.6 Exam regulations
- 3.7 Prevention of fraud and plagiarism
- 3.8 Quality and consistency of assessment.

### **Ad 3.1 Examination Committee**

The Faculty of Management and Governance has two examination committees, one for all bachelor programmes and one for all master programmes. The Examination Committee for MRM, therefore, is the master Examination Committee of the Faculty<sup>53</sup>. The committee is responsible for the correct performance of all education and exam rules in the Student Statute (appendix 2.2.2-2; frequently referred to in Dutch as 'OER': Onderwijs en Examen Reglement), and can, if necessary, decide to deviate from those rules (in favour of the student). The MRM-part of the Student Statute has been formally approved in December 2008.

The master Examination Committee, in summary, has the following roles:

- To oversee the (development of the) level of students and, if so required, to request changes in the intake procedure;
- To conduct re-assessments at the 'meta level' of master's theses, on an *ad hoc* basis;
- To approve examiners, based on a proposal from the programme leader;
- To handle cases of suspected student fraud or plagiarism, based on a request from the lecturer involved;
- To act as a body of appeal for students regarding the provision of exemptions. Dealing with exemption requests is the prime responsibility of the lecturer involved, and with the programme leader eventually deciding.
- To deal with any other matters, for which it is competent, and for which existing rules and regulations are deemed unfit.

Discussion as to the evaluation of assessments are currently ongoing. A possibility would be that the Examination Committee is directly informed about evaluation of assessments on an exception reporting basis. This may also include the oversight of the relationship between programme final qualifications and the assessment at the module (or seminar) level. Also, the Examination Committee is currently reviewing the policy changes required by the upcoming new Dutch Higher Education legislation.

The university is planning to introduce a standardised Student Statute in the near future. MRM will introduce this as well. The Faculty of Management and Governance is planning to introduce an assessment policy. MRM will align with this initiative, too.

### **Ad 3.2 Assessment methods**

The final qualifications of MRM constitute knowledge and skills. These final qualifications have been translated into an appropriate set of learning objectives of the individual items of the programme. The methods of assessment (see table 2.2-5) match the learning objectives of the programme elements, to ensure that graduates have met the learning objectives of the modules, and the final qualifications of the programme.

Full module descriptions (appendix 2.2-1a) outline in more detail than the Student Statute how the assessments will be made. MRM aims at a well chosen broad set of assessment methods fitting on the one hand the objective and the final qualifications of the programme and on the other hand the type of module (and lecturer) and the experience of the student. Under the authority of the programme leader, the programme manager has the responsibility that an appropriate mixture of assessment methods is represented in the programme. Every year the mixture will be reported in the annual report of the programme and discussed with lecturers with respect to the appropriateness and the work load of the lecturers.

To support the development of an appropriate set of assessment methods for MRM some basic rules of thumb were developed for the programme that are used by the programme manager:

- § All graded modules have fully individual exams.
- § There is a maximum of two modules with an open book exam.
- § In at least one module part of the assessment consists of a presentation.
- § A maximum of 5 EC can be assessed by pass or fail based on attendance and active participation.
- § For the assessment of the Case research project a separate assessment form is used (see appendix 2.2.2-3).

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<sup>53</sup> See also Appendix 2.2.2-1, Faculty of Management and Governance Regulations (March 2009, in Dutch)

### **Ad 3.3 Assessment of research project**

The rules on assessment of the research project and the resulting thesis are laid down in the document 'Case Research Guidebook'<sup>54</sup> of the Faculty of Management and Governance, which all students and Case research project supervisors receive. In short, the final grade consists of 4 elements: the plan / execution of the research, the thesis, independence and communication (the assessment form in Appendix 2.2.2-3). When the research project is done at a host organization, the judgement of the external supervisor is taken into consideration. Supervisors of the Case research project have a PhD degree or involve a member of staff with a PhD in the supervision and assessment.

The research project proposal is also graded as part of the Cases and Methodology module. Both the lecturer of this module and the student's supervisor have to approve the proposal.

### **Ad 3.4 Assessment in relation to final qualifications**

#### **Assessment of module 1, Introduction**

This module provides an introductory overview and *aims* at making students acquainted with key RM (risk management) principles like the definitions of risk and the RM cycle. Also, RM is positioned in both the macro context of the society and the micro context of a number of organizations. Regulation is a third part of the module's aim. Primary relationships exist with FQs (final qualifications) 1 and 2, in which knowledge and insight of theories of RM and of risks are central. The individual written *assessment* includes a total of ten questions from participating lecturers, under the guidance of the core lecturer. Questions are of the essay type and include: the concept of risk; categorisations of risk; analysis of a resilience paragraph; differences between the classical and new risk approaches, including risk governance; performance management in relation to RM; RM and corporate governance; crime prevention and risk analysis; flooding risk strategies.

This module has a considerable number of lecturers involved. 'Free riding' of students is prevented in this and all other modules by specifically indicating that all subjects taught can be part of the assessment.

#### **Assessment of module 2, Risk Assessment**

This module *aims* at students obtaining knowledge, insight and skills regarding risk identification, risk analysis, prioritizing risks and the evaluation of risk assessment. A primary relationship exists with FQ 1 (theory<sup>55</sup>) and secondary relations exist with FQs 2 (insight), 4 (judgement), 5 (communicate), 6 (transfer conclusions), 8 (force fields), 10 (position and integrity) and 12 (research and problem solving). The individual *assessment* consists of two parts: a written exam and an exam using a web-based RM information systems (RIMS) tool. The written exam consists of ten knowledge-type questions on e.g. risk identification and risk analysis. One RIMS-part consists of the assessment by students of a risk profile given in the RIMS, based on seven questions (to be answered on paper), e.g. on the assessment of a risk profile and a qualitative assessment of a list of top-3 risks. The second RIMS-part consisted of risk formulation, risk entry and simulation of a number of risks in the RIMS.

All students worked individually on laptop computers using wireless access.

#### **Assessment of module 3, Risk Control**

This module *aims* at students obtaining knowledge, insight and skills regarding the avoidance and financing of and exercising controls over risks. Primary relationships exist with FQs 1 and 2 (theory and insight, respectively) and secondary relationships with FQs 3 (create awareness), 6 (transfer conclusions), 9 (own reflection) and 12 (research and problem solving). The individual, written *assessment* consists of [i] three knowledge tests during the module, [ii] a take-home case elaboration and [iii] a final test based on the same case.

Intermediate assessment, i.e. in the course of a module were introduced following the evaluation of module 2, during which students of cohort 1 indicated that this would improve feasibility of their studies.

#### **Assessment of module 4, Risk Communication**

This module *aims* at students obtaining knowledge of the key themes and theories of risk perception research and its fields of application i.e. risk and crisis communication. Students also learn to apply this knowledge and to reflect in interaction with lecturers and each other. A primary relationship exists with FQ 1 (theory) and secondary relations exist with FQs 2 (insight), 3 (create awareness) and 4 (judgement). The individual, written *assessment* focuses on knowledge of key concepts and uses question items that test both knowledge and insight.

<sup>54</sup> 'Case Research Guidebook' 2009-2011' is included in appendix 2.2.2-3.

<sup>55</sup> Full final qualifications abbreviated for conciseness

### **Assessment of module 5, Study Trips**

This module consists of two study trips, a short trip in The Netherlands and a somewhat longer trip abroad. The *aims* are to integrate and apply knowledge and insights acquired in the programme, to learn from the risk management practices from actual public and private organizations - national and international - and to enhance team work and team spirit in the student group. Primary relationships exist with FQs 5 (communicate), 6 (transfer conclusions) and 11 (teamwork & team leading) and secondary relationships with FQ 3 (create awareness) and 7 (advising). The *assessment* is team-based; teams execute a small consulting assignment. Programme management assigns students to small teams and these teams produce a report of the study trip and the preparations thereof. Preparation consists of desk research into the organizations to be visited. The team reports, to include experiences of students with the assignment and the advice that teams would give the organizations of the study trip, are assessed and graded per team. The short and longer trip assessments weigh for 20% and 80%, respectively, in the final grade.

### **Assessment of module 6, Organization of Risk Management**

This module *aims* at students obtaining knowledge and insight of the principles and practice of organization of institutions in the public and private sector and how the risk management function is or can be organized, taking integrated risk approaches into consideration. Also ethical, integrity, compliance and governance are dealt with, as are certification and integration of (risk) management systems. Insight and theoretical skills regarding design and implementation of a risk management organization also is an aim, as is knowledge of complex (e.g. network) organizations. Primary relationships with FQs 1 (theory), 4 (judgement), 6 (transfer conclusions) and 10 (position & integrity) and secondary relationships with FQs 5 (communicate), 8 (force fields) and 12 (research, problem solving). *Assessment* consists of individual, written intermediate tests and an individual, written final test shaped as a concise, take-home assignment. The final grade will be based on a 50/50 combination of the interim tests and the final exam; both parts must score a pass. In this module, attention will also be paid to the scientific rules for avoiding plagiarism.

### **Assessment of module 7, Special subjects**

The module consists of three sub-modules, i.e. (1) Technological Risk Management, (2) Organizational Special Subjects and (3) Financial and Legal (aspects of) Risk Management. These sub-modules are managed and assessed individually. Grades obtained per (part of a) submodule contribute to the final overall grade of the module by weighing based on ECs.

*Technological Risk Management aims* at students obtaining knowledge and insight into the definition of technology, types of technological risks, the state of the art in technological risk management and a number of case examples, i.e. ICT, civil nuclear energy and nanotechnology. Primary relationships exist with FQs 2 (insight), 5 (communicate) and 8 (force fields) and secondary relationships with FQs 4 (judgement), 7 (advising), 10 (position & integrity) and 12 (research & problem solving). The *assessment* consists of a combination of individual intermediate tests and an individual, written exam based on a case assignment in which students apply their knowledge and insight to their own organization.

#### *Organizational Special Subjects*

The *aim* of this submodule is for students to obtain knowledge and insight into: (i) project risks and the way in which these differ from other types of risks; shaping the risk management process in projects; risk diagnosis; and process analysis of complex projects from a risk management perspective, (ii) patterns and political-managerial aspects of crises; types of crises; the relationship between crisis and risk management; the difficulty of decision-making under time pressure, and (iii) types and examples of personnel risks and the principles and methods of personnel risk management; the relationship between HRM and risk management in students' organizations and how to work and present in a group. Primary relationships exist with FQs 3 (create awareness), 5 (communicate) and 12 (research & problem solving). Secondary relationships are with FQs 1 (theory), 2 (insight), 4 (judgement), 5 (communicate), 6 (transfer conclusions), 7 (advising) and 11 (teamwork & team leading). The *assessment* consists of a combination of an individual written case assignment, an individual written column and a group presentation.

#### *Financial and Legal (aspects of) Risk Management*

The submodule *aims* to provide participants with (i) an understanding of how the variety of financial risks faced by private and public organisations are identified, measured and managed. Attention will also be paid to risk management in the context of corporate governance and how it impacts the value/performance of the firm; (ii) an introduction to the legal aspects of risk management, and knowledge and insight of the legal aspects of technical/physical risks and of legal-management aspects of legal risks. Primary relationships exist with FQs 1 (theory), 2 (insight), 8 (force fields) and 9 (own reflection). Secondary relationships with FQs 4 (judgement), 5 (communicate) and 6 (transfer conclusions). The individual written



assessment consists of two assignments for Financial and Legal, the grades of which will contribute to the final grade of the module according to EC contribution.

### **Assessment of module 8, Bernstein Reflection**

This module *aims* to install a period of reflection for students between the cursorial part of the programme and the Case Research project. This reflection relates to the learning to date and to the work situation of students. Primary relationships with FQs 1 (theory) and 9 (own reflection) and secondary relationships with FQs 2 (insight) and 5 (communicate). The individual, written and verbal *assessment* consists of three parts: a student reflection report is assessed on (i) content (60%) and (ii) wording (20%) and (iii) the student's presentation and contribution to discussion thereof (20%).

### **Assessment of Learning Pathway of Cases and Methodology (1a - 7a)**

The learning pathway of Cases and Methodology consists of two submodules: Research Methodology (1A, 2A, 3A, 4A, 6B and 7A) and Design Methodology (6A). These are here described jointly. The *aim* is twofold: firstly for students to obtain knowledge of and skills in the use of scientific methods for the production of knowledge. And secondly to being able to critically judge design methods and to use the design cycle on design issues. Primary relationships exist with FQs 6 (transfer conclusions), 9 (own reflection), 10 (position & integrity) and 12 (research, problem solving). Secondary relationships with FQs 1 (theory), 5 (communicate), 7 (advising), 8 (force fields) and 11 (teamwork and team leading). The *assessment* is based on five components: (i) individual, written assignments, (ii) intermediate testing, with a mix of multiple choice and open questions, (iii) participation and presentation during seminars, (iv) the student's proposal for the Case Research Project and (v) the design assignment. Each component must score a pass. The weight of these components in the final grade corresponds to the EC distribution and equals 25%, 35%, 15%, 10% and 15%, respectively.

### **Assessment of module A, Current Topics**

The module Current Topics consists of five evening sessions, with one topic for each session. These topics will chosen and planned in connection with important events with respect to risk management. The *aim*, therefore, is to inform students of current risk management issues, of a high visibility. The first Current Topics evening, in June 2009, dealt with the recent Dutch Turkish Airlines crash. The primary relationship is with FQ 5 (communicate). Secondary relationships exist with FQs 1 (theory), 2 (insight), 3 (create awareness), 4 (judgement), 6 (transfer conclusions) and 12 (research & problem solving).

Based on informal evaluation of this first Current Topics evening session, programme management decided to introduce *assessment* a) by providing up-front literature to students (or have them select literature themselves) and b) by having students produce an individual written report on the subject of the Current Topics session.

### **Ad 3.5 Processing of exam results and feedback**

The grades of exams and assignments are sent to the programme coordinator and / or programme manager, and through them are communicated to the students. According to the regulations, all tests should be graded within 15 working days (Student Statute).

Within 15 working days after the results of a test have been announced, students can ask the programme manager or lecturer for the student to inspect the assessed exam and for a discussion of the exam, the assessment standards and the results obtained. Based on the discussion, the student can submit a motivated request to re-assess the work. When many students want to review their exam papers, a feedback meeting will be organized.

### **Ad 3.6 Exam regulations**

The Exam regulations are laid down in the Student Statute of the Faculty <sup>56</sup>. The main features of the MRM Exam regulations are:

- § Tests are marked on a scale of 1 to 10 as unsatisfactory or satisfactory. Satisfactory is a 6 (that is, 5.5 or higher), unsatisfactory is a 5 (that is, 5.49) or lower. The lecturer determines the requirements and whether they are met. Grades are rounded off to whole numbers. Rounding off will only take place after the final grade has been determined.
- § The student can compensate for unsatisfactory marks on a partial test by getting satisfactory marks on another partial test that is given within the module. However, the score for the main component(s), as

<sup>56</sup> Appendix 2.2.2-2

specified by the lecturer (usually an individual, written exam or assignment), needs to be at least 5.0. The partial assessments and their weight are communicated to the students by the lecturer. If a student does not pass a module, he or she has a second chance for the main test (which is recorded as the second exam chance). This policy will be integrated into the Exam regulations in the next revision. For exams that consist of several parts, all parts have to be passed within a year. If not, all parts need to be repeated.

- § Students have two chances to pass an exam (that is, all items except the Case research project). If after two exam sittings the student has not yet passed, he or she can request a third exam opportunity; the Exam Committee decides about such a request. The management of the programme (programme leader and the programme manager) will decide about this in consultation with the relevant lecturer(s) and based on several criteria like the student's motivation, attendance, and results in other modules.
- § For the Case research project there is no second chance, except in cases of e.g. serious illness. When a student fails to meet the requirements, but has shown considerable effort and motivation, he or she will be offered the opportunity to improve or make additions to the work. The requirements for this are specified by the Case research project supervisor.
- § A student can only enter the Case research project if at least 35 ECs of module work have been concluded.
- § To obtain the diploma, all parts of the programme should be completed with a satisfactory result.
- § If for some reason a student can not obtain a diploma, certificate(s) can be issued.
- § There is an exemption procedure by which students can request an exemption for a specific module. The request is assessed by the Examination Committee based on input from the programme manager
- § Rules for 'Cum Laude' award of the diploma have been specified.
- § There is an appeal procedure.

### **Ad 3.7 Prevention of fraud and plagiarism**

The rules with respect to fraud and plagiarism are in line with the policy of the University and laid down in the Student Statute. Early on in the programme, i.e. in seminar 2 (module 1), students are taught about prevention of fraud and plagiarism. Lecturers pay attention to this when reviewing written assignments. Some choose to use the plagiarism-check in the TeleTOP system<sup>57</sup>, whereas others check for it manually using search engines when they have suspicions.

### **Ad 3.8 Quality and consistency of assessment**

To ensure the quality and consistency of the assessment, the following routines are in place:

- § The core lecturer of a module oversees its examination
- § Most modules are taught and assessed by at least two lecturers
- § The academic staff has adequate experience in examination and assessments. The majority is also involved in other master programmes of the university.
- § To support a consistent level, future exams or assignments will regularly include one or a few questions that were also used in previous years. It is important to note that exam and exam papers are always collected and do not circulate, so exam papers of previous years are not available to students.
- § The programme manager reviews all module test results. In the case of unusual test results, the programme manager discusses this with the lecturer.
- § The Case research thesis is assessed by means of a standard assessment form, which is sent to the programme manager. See 'Case Research Guidebook'.
- § The Faculty has a committee<sup>58</sup> that performs evaluations at a meta level of the assessment of master's theses for the programmes of the Faculty. The purpose of this meta evaluation is to assure the quality of Master's theses and the harmonization of criteria and level of assessments among examiners. MRM theses will either be included in the work of this committee, or a separate MRM committee will be installed, consisting of e.g. prof. Fisscher and the postgraduate programme representative in the Exam Committee, Ir. Bandsma.

In addition to this the core module lecturers will prepare and provide to the students a written module description that describes the specific learning objectives, the teaching methods and the method(s) of assessment (see appendix 2.2-1a). For each two-day seminar, a brief description is provided in addition (see appendix 2.2.2-4 for an example).

<sup>57</sup> TeleTOP is the University's course management system.

<sup>58</sup> Currently headed by prof. dr. ir. De Weerd

### **2.2.3 Coherence of programme**

The Master of Risk Management is a coherent study programme, which is based on the risk management cycle. This coherence is anchored in the basic structure and set up of the programme, as well as in its organization. More specific, coherence is reached through the following five mechanisms:

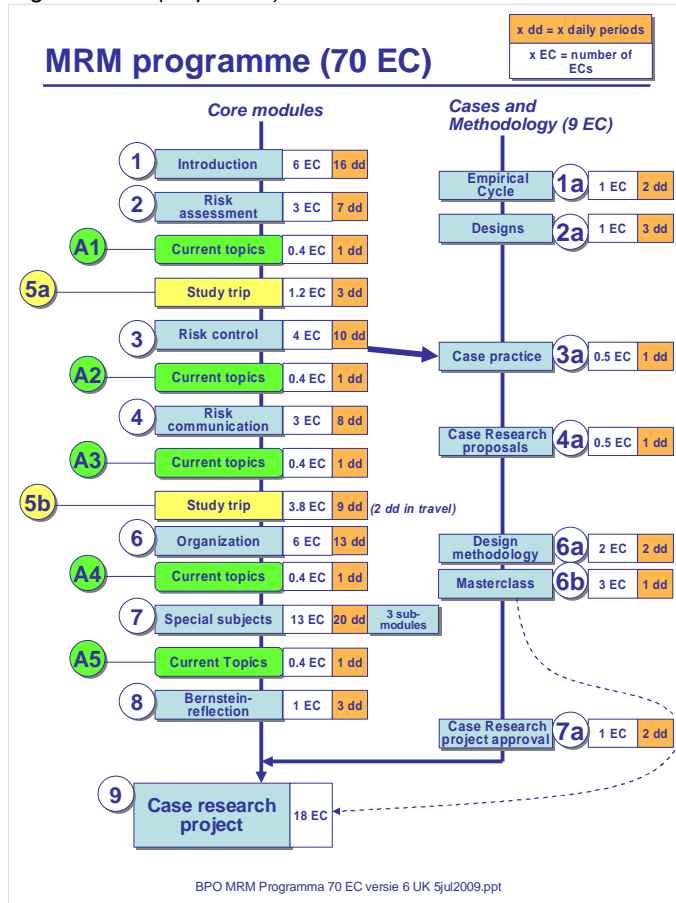
1. Strong and clear basic structure of programme
2. Coherence between modules
3. Working towards Case research project
4. Organization
5. Quality assurance



**Ad 1. Strong basic structure**

The programme has a strong basic structure. It has already been presented in figure 2.2.1 and is repeated here for ease of reference:

Figure 2.2.1. (Repeated)



The programme consists of three main components: the **Core Modules** (modules 1 through 8 plus module A), the **Cases and Methodology Module** (submodules 1a through 4a plus 6a, 6b and 7a) and the **Case Research project** (module 9).

In the **Core Modules** the risk management cycle (see figure 2.2-2) is covered: after a thorough Introduction to Risk Management (module 1), Risk Assessment (module 2), Risk Control (module 3), Risk Communication (module 4) and Risk Organization (module 6) are taught. The sequence of these modules follows the logic and content of the risk management cycle. Next, module 7 covers a range of special topics in submodules. Three special topics are programmed. As mentioned already in the introduction of section 2.2, these are: (1) Technological Risk Management, (2) Organizational Special Subjects and (3) Financial and Legal (aspects of) Risk Management. The sequence in which these submodules are taught is not highly important, because of their nature. Internal logistics will to a large extent determine the order of these submodules.

In between the modules described directly above, two study trips are planned (submodules 5a and 5b). The first one, submodule 5a, is a short Dutch study trip, whereas submodule 5b consists of a longer, international study trip, e.g. to the United Kingdom – a forerunner in risk management. Although of limited size, module 8 (Bernstein reflection) contributes to the scientific attitude of the students. Bernstein's book discusses the history of thinking on risk. It is strongly felt that history should be a component in each academic curriculum. Students are required to take a number of elements for the Bernstein book and apply these to their own organization and its risk policy.

The **Core Modules** have two main connections with the other main component of the programme, i.e. the Cases and Methodology Module. First, module 3 of the core modules links into the **Cases and Methodology Module**: the content of modules 1 through 3 will be the subject of a case students will work on in the Cases and Methodology submodule 3a. (This is shown by the arrow in figure 2.2.2.) This is to train students in dealing

with a scientific case in preparation of their **Case Research Project**. Next, the **Core Modules** evidently feed into the **Case Research Project**. Just before the start of the case research project, the **Cases and Methodology Module** feeds into the **Core Modules** line. In submodules 4a and 7a of the **Cases and Methodology Module** students prepare and propose their plan for the case research project.

#### **Ad 2. Coherence between modules**

In the design and development stage of the programme, coherence was assured by the programme leader's efforts in establishing and communicating an evolving guideline document (in Dutch: leidraad). In this document, the contents of the various programme parts were laid down in a sufficient amount of detail for core module lecturers to develop their module in full detail. The MRM programme management monitors coherence between modules of the operational programme. Proactively, it issues guidelines to (core) lecturers and reactively, it responds to the outcomes of evaluations and to inputs obtained during their attendance of seminars (see also Ad 4.).

Students of cohort 1 evaluated the coherence between modules as well above target. See appendix 2.5.1-2. Some overlap between modules has been observed by programme management, mainly in the explanation of terms and definitions. Although repetition is considered to support learning, programme management will pay increased attention to preventing too much redundancy in cohort 2.

#### **Ad 3. Working towards Case research project**

The preparations for the Case research project already start during the preceding period, both in the Core modules and in the Cases and methodology line. In the latter line students learn how to design a research project. They practice this using a case derived from the core modules (1 through 3). Students are asked to work on and submit a proposal for their Case research project from their employer organization. Subject to approval by the programme the plan can be executed by the students in the Case research project module. Monitoring progression in this stage is vital, as there are no group study seminars planned in this phase. Both the supervisors and the students receive the reader 'Guidebook for the Case research project' which provides information and guidelines.

#### **Ad 4. Organization**

The MRM programme has a relatively small scale and the programme manager and office manager are focused on developing and maintaining good relationships with both students and lecturers and supervisors. For this, the programme policy is to have open and quick-response lines of communication through e-mail, telephone and face-to-face contacts. The programme manager and office manager frequently visit MRM seminars and the programme manager accompanies students on their study trips. Lecturers regularly discuss their module contents, materials and set up with the programme manager. Also, the programme manager reviews the seminar and module evaluations and has coordination meetings and individual, informal talks with the students on a regular basis. This enables the programme manager to signal problems with respect to module content (as well as with respect to many other issues).

Programme management and the core lecturers meet and discuss developments a few times a year. There is not yet a formal meeting roster in place. The programme manager signals the need to meet. Core lecturers are responsible for coordination with the lecturers in their module. For example, a significant number of coordinational meetings in module 7 was dedicated to the design and development of sub-modules; these meetings were supported by the programme manager.

MRM will issue a periodical newsletter for (core) lecturers, other staff and students to communicate developments. It is planned to be issued three times a year.

#### **Ad 5. Quality assurance**

Next to the organizational measures (see previous paragraph) the quality assurance system provides a more structured approach towards assessing and improving MRM programme coherence. See section 2.5 for more details.

### **2.2.4 Study programme's feasibility**

This section discusses the study programme's feasibility, that is, whether the educational conditions allow for smooth and regular progress in the programme. The following items will be discussed:

1. Design of the programme
2. Coordination of the programme

### **Ad 1 Design of the programme**

This item is discussed in three parts:

- 1.1 Design
- 1.2 Barriers
- 1.3 Study load results

#### *Ad 1.1 Design*

The study load of the programme is 70 EC in two and a quarter year, divided over a course work period (52 EC, two years) and a Case research project period (18 EC, 3 months<sup>59</sup>). A total of 20 monthly 2-day seminars are held. In July and August, no seminars are planned. The sum of contact time for all twenty seminars equals 330 hours. In the modules, self study load equals 20 hours per EC, i.e. 1040 hours in total. As a rule of thumb, 1 EC corresponds with 80 pages of obligatory (Dutch or English language) literature. Core lecturers have been provided with a document containing this and other programme standards (appendix 2.2.4-1).

The programme is designed to generate an average self study load of 10 hours per week in the course work period. This principle is clearly outlined in the programme information (e.g. the brochure<sup>60</sup>) and this aspect is thoroughly covered during the intake meeting with candidates. Also, the exams, one for each module, are planned in a way that allows students to prepare for approximately 4 weeks. Exams are planned at the beginning of a seminar. The time table (see appendix 2.2.4-2) provides details on the exam schedule and is distributed to students during the first seminar.

Repeat exams are planned later in consultation with relevant students. The lecturers decide on deadlines for assignments, in consultation with the programme manager, and communicate this to the students. The programme manager takes into account other relevant deadlines and exams.

It is foreseen that the deadlines for preparing individual assignments and exams are sufficiently adequate, but their combination with other deadlines, exams and activities requires good planning by students themselves. If pressure is too high, the programme manager decides in consultation with students and with lecturers about changes in deadlines and / or exam dates.

The Case research projects are different in nature. They are individual and there are strict deadlines, and regular progress meetings. During the research project the supervisors monitor the progress of the students. Towards the end of the programme period the programme manager regularly checks the status of the students' projects with the supervisors and keeps track of progress and graduation dates in a separate document (see appendix 2.2.4-3). MRM programme management uses a OneNote-based system to monitor progress. In the near future, the newly to be implemented student monitoring ICT system Osiris may be deployed for MRM.

#### *Ad 1.2 Barriers*

Despite careful planning, peak loads can exist in the programme. As explained below, the programme manager aims to keep study loads within reasonable limits and to enable smooth progress of students through the programme.

When students have to take resits for one or more modules, it especially takes time away from preparing the Case research project. This may lead to a delay in the start of the Case research project, and thus in its completion. Family or social obligations and work can keep the student from investing enough time in the Case research project as well. The Case research project has been designed to prevent delays by including a preparatory phase (in the Cases & Methodology line) in which a research proposal has to be written and approved before the actual start of the Case research project execution, so the student had a clear work plan before starting execution.

Statistics knowledge and skills proved to be an issue for the first cohort. For early admissions, a pre-master statistics course was provided. Because of late admissions, a newly designed statistics course was held in conjunction with seminars 2 and 3. Unlike the former course, the latter course had a self-test after the second course meeting, allowing students and programme management to take additional measures to bring individual students up to the mark. See section 2.2.5 for more details.

<sup>59</sup> This planning is based students conducting their Case Research project in their own organization

<sup>60</sup> See appendix 0-1

Missing out on a seminar can also provide a barrier. Therefore, integral digital video recording of the seminars was arranged. Students are urged not to miss out on (part of a) seminar, but if they do, the video files, together with the other instructional materials helps to stay up to date in learning.

#### *Ad 1.3 Study load results*

Cohort 1 provides a - limited - amount of information on actual study load results. The following box provides details:

At the beginning of seminar 2 (February 2009) a student questionnaire survey was carried out regarding the self study load between seminars 1 and 2. The average nominal load for this period was 42 hours. All 12 students participated in the survey. The mean actual work load was 48.3 hours, i.e. 15% higher than the nominal value. The range, however, was large: 75% of the students scored from 10 hours to 70 hours of actual study load. Students commented on this wide range by explaining that some had had serious time commitments for work and private life, whereas others had already worked through material of seminars yet to come. English language study material was mentioned by 3 students as contributing to a higher work load. The findings were discussed with the students the next day and with the programme leader. It was concluded that no changes to self study load policy would be made until the results of a new survey during seminar 3 provided reasons for change. This second survey indicated that work load was acceptable. Also, module evaluations to date confirm that work load is acceptable.

As of the next edition of MRM, an additional peak load target value, to be determined, in between seminars will be introduced in the quality assurance system.

#### **Ad 2 Coordination of the programme**

Analysis of the practicability of the study programme is part of the quality assurance system (see section 2.5). First of all, the seminar and module evaluations ask for the study load experienced by the students. Second, the programme manager keeps track of progress and statistics about graduation dates.

When the results of the first round of exams become available, the programme manager reviews the results of all students, and draws up a progress document with an overview of results, resits needed, etc. per module and student. Resits are scheduled in consultation with the students involved, taking into account other obligations and deadlines. The programme manager keeps track of the results of the resits, processes the results into the progress document (see appendix 2.2.4-3) and informs students about the procedure to request for third exams if necessary. The relatively small number of students allows the programme manager to keep an overview. If necessary, the office manager has a meeting with individual students to discuss the results, progress and study planning. If students feel the need, they can always ask for a meeting with the programme manager to discuss their study results.

Coordination is one of the topics in (core) lecturer's meetings. Topics will include perceived study load, deadlines coming up, etc. Next to this, also personal contacts are very important, both formal and informal, in person but also e.g. by e-mail. The MRM programme has a strong coordination at a very personal level, and there is an 'open door' policy, both for practical and personal issues as well as for study-related issues.

### **2.2.5 Intake<sup>61</sup>**

This section describes the admission criteria and the admission procedure of MRM and argues that this fits with the intended character of the programme<sup>62</sup>. The section is subdivided into the following four sub-sections:

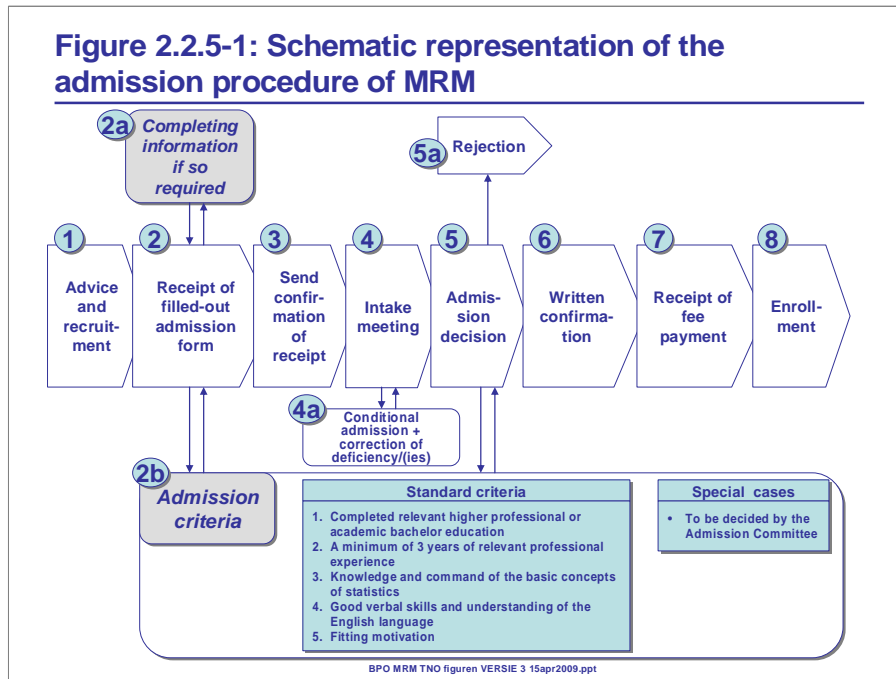
1. Description of admission approach
2. Intake in relationship to the intended character of the programme
3. Experiences and developments in admission
4. Conclusions

<sup>61</sup> See also: Joosten-Ten Brinke, D., Sluijsmans, D.M.A., Brand-Gruwel, S. and Jochems, W.M.G., The quality of procedures to assess and credit prior learning: Implications for design. *Educational Research Review* 3 (2008) 51-65

<sup>62</sup> Please note that in The Netherlands 'master-after-master' programmes are rare, unlike what is customary in e.g. Belgium

**Ad 1. Description of admission approach**

In the intake procedure, the quality of the intake with respect to level, experience, skills and motivation is assured. Figure 2.2.5-1 schematically depicts the steps to be taken in the admission procedure. Subsequently, these steps are detailed further in this section.

**Overview of the procedure**

Any person who is interested in taking the master's programme has to go through the admission procedure. The guiding principle for admission is that the student has enough background and motivation to complete the programme successfully.

The applications, with CV, are received by the marketing officer of BPO, and submitted to the programme manager for an initial check against the admission criteria. The Admission Committee is responsible, whereas the Examination Committee is accountable for admission of applicants. Prior to the (formal) intake meeting, an orientation meeting may be held with a candidate at the request of the latter. Normally, two members of the Admission Committee conduct the intakes. In special situations the programme manager conducts the intake by himself after which he consults the chairman of the Admission Committee to obtain a decision regarding admittance. Special cases are discussed with the chairman of the Admission Committee, also.

All applicants that meet the admission criteria receive an admission letter. If one or two criteria are not met yet, they receive a conditional admission letter, which is replaced by an unconditional admission once all criteria have been met. Final admittance (that is, actual participation) depends on payment of the tuition fee. In case the actual number of participants exceeds the maximum (the maximum is 25 students), the date of payment of the tuition fee is used as the decision rule.

**Step 5: Admission decision**

For direct admission, a candidate must comply with all of five criteria. These criteria will now be outlined.

**Criterion 1: Completed, relevant higher professional or academic bachelor education**

Graduates of the programmes indicated in table 2.2.5-1 comply with this criterion. Special cases will be admitted or rejected with motivation. BPO holds these intake records.

**Table 2.2.5-1 Higher professional and academic bachelor education of which the graduates comply with criterion 1**

Engineering and natural sciences	Social sciences	Specialist programmes
<ul style="list-style-type: none"> <li>• Chemistry, chemical technology</li> <li>• (Technical) mathematics</li> <li>• (Technical) physics</li> <li>• Engineering programmes</li> </ul>	<ul style="list-style-type: none"> <li>• Economy</li> <li>• (Technical) business administration</li> <li>• Public administration</li> <li>• Work and organization psychology</li> <li>• Law</li> </ul>	<ul style="list-style-type: none"> <li>• Risk management (Haagse Hogeschool)</li> </ul>

**Criterion 2: At least 3 years of relevant professional experience**

For this criterion the scheme in table 2.2.5-2 was developed. This scheme is used in the intake procedure. It contains *examples* of possible findings in the intake procedure.

**Table 2.2.5-2 – Assessment scale for criterion 2, relevant professional experience**

Category of professional experience	1. Strongly insufficient	2. Insufficient	3. Sufficient	4. Good	5. Possibly over-qualified <sup>63</sup>
Manager	Head of secretariat	Head of administrative department with two reports	Head of production department	<ul style="list-style-type: none"> <li>• Head of HSE department</li> <li>• Head of Fire brigade</li> <li>• CEO of municipality</li> <li>• Head of financial department</li> </ul>	<ul style="list-style-type: none"> <li>• Director of risk management</li> </ul>
Advisor	Junior HRM advisor	'Medior' HRM advisor	<ul style="list-style-type: none"> <li>• Senior HRM advisor</li> <li>• HSE advisor</li> <li>• 'Medior' management consultant</li> </ul>	<ul style="list-style-type: none"> <li>• Advisor risk management</li> <li>• Senior management consultant</li> </ul>	<ul style="list-style-type: none"> <li>• Partner risk management</li> </ul>
Specialist	Junior financial specialist		<ul style="list-style-type: none"> <li>• HSE specialist</li> <li>• Insurance specialist</li> <li>• Lawyer</li> <li>• Medical specialist</li> </ul>	<ul style="list-style-type: none"> <li>• 'Medior' specialist risk management</li> </ul>	<ul style="list-style-type: none"> <li>• Senior specialist risk management</li> </ul>

**Criterion 3: Knowledge and command of the basic concepts of statistics**

**Background:** there are two reasons to require statistical entry knowledge. First, statistics are not only frequently used in risk management, but risk management is always about chance, a basic concept in statistics. Second, being able to adequately conduct scientific research also requires a statistics foundation. In the learning pathway of Cases and Methodology, therefore, the principles of probabilistic thinking (probability, frequency distribution, Gauss curve, Monte-Carlo technique, *et cetera*), is taught. In view of this an eligible candidate has knowledge and command of the basic concepts of statistics.

**Criterion:** in the admission request dossier analysis and during the intake meeting this criterion is checked on a case-by-case basis. Candidates who can provide proof of meeting the criterion, e.g. based on the fact that they graduated a programme with (an) appropriate statistics course(s) pass this criterion. Candidates that do not pass this criterion, but who do pass the other criteria of the intake procedure, must take an extra-curricular statistics course. It is preferred, but not always possible in practice, that candidates take this extra-curricular statistics course before entering the MRM programme. When this is the case, suitable measures will be taken to ascertain the viability of their studies.

<sup>63</sup> Whether a candidate is over-qualified is determined on a case-by-case basis. It is, for instance, possible that a highly qualified candidate wishes to acquire an academic degree. Vital to the determination of over-qualification is that the expectations of the candidate with respect to the level and the target group of MRM are clear and that the candidate fits into the student group envisaged by programme management.



**Criterion 4: Good verbal skills and understanding of the English language**

**Background:** the teaching language of MRM is Dutch. However, much of the study material is in English, and the (second) study trip will most likely be conducted mainly in English.

**Criteria:**

- For speaking, listening and writing skills, the level should be CEF B2 (equivalent to IELTS 5.5 / 6). Reading skills should be at the CEF C1 level (equivalent to IELTS 6.5 / 7). A high school (VWO level) diploma with (final exam in) English and/or diploma of higher professional education is considered to meet this criterion.
- If criterion a) is not met, the deficiency needs to be corrected (see 'extra-curricular courses').
- If a candidate formally meets criterion a but fails to do so in practice - due to a lack of experience in reading and speaking English, a candidate will be advised to do an extra-curricular training. Candidates can self-assess their skills at [www.dialang.org](http://www.dialang.org).

**Extra-curricular training**

Candidates who have a limited deficiency in statistics or English are required to take extra-curricular courses on these topics.

**English**

English-language training courses are provided by the TCP Language Centre of the University of Twente<sup>64</sup>.

The most relevant courses are:

- *Academic Reading*, a self-study course to improve reading skills (<http://www.utwente.nl/tcp/englishlanguagecourses/academicreading.doc/>)
- *Academic Writing Skills 1*, the open-entry version of which takes 8 days times 2 hours (tailoring is possible for groups larger than 10 students)
- *Academic Writing Skills 2*, the open-entry version of which takes 8 days times 2 hours (tailoring is possible for groups larger than 10 students)
- The two latter courses include an admission test based on CEF, with a self test ([www.dialang.org](http://www.dialang.org)) as a component.

A dedicated statistics preparatory course, focusing both on the requirements for risk management and for scientific research, has been developed for and provided to some of the students of the first cohort.

See section 2.2.4 for the design of the statistics pre-master and the statistics parallel course.

**Criterion 5: Fitting motivation**

Motivation evidently is difficult to assess, as its assessment is vulnerable to acting behaviour by a candidate. The scale in table 2.2.5-3 was developed for and is in use by MRM. It contains **examples** of potential findings in admission meetings.

Table 2.2.5-3 – Assessment scale for criterion 5, Fitting motivation

Category of motivation	1. Strongly insufficient	2. Insufficient	3. Sufficient	4. Good	5. Special case
Study load	Study load very problematic	Study load problematic	Study load acceptable	Study load acceptable and very motivated	Study load no issue because unemployed
Programme	<ul style="list-style-type: none"> <li>• Only 'taking', no 'bringing' of knowledge and experiences</li> <li>• No argued choice for MRM</li> </ul>	<ul style="list-style-type: none"> <li>• Can and will 'take' and 'bring'</li> <li>• MRM seems to be 'fun'</li> </ul>	<ul style="list-style-type: none"> <li>• Is convinced of the importance of 'taking', and 'bringing'</li> <li>• Chooses consciously for MRM</li> </ul>	<ul style="list-style-type: none"> <li>• Is convinced of the importance of 'taking', and 'bringing' is convincing that he/she will</li> <li>• Chooses very deliberately for MRM, based on a market review</li> </ul>	Superior or employer demands candidate to do MRM
Career	Does not know why MRM would be useful	Believes that MRM could be useful, but is unable to explain why	Can clearly motivate what the use of MRM is for his/her career	<ul style="list-style-type: none"> <li>• Knows and can explain that MRM will contribute with certainty to</li> </ul>	No issue because unemployed

<sup>64</sup> <http://www.utwente.nl/tcp/>

				his/her career	
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### *Special cases*

The Admission Committee decides about admittance of special cases, i.e. promising applicants whose qualifications do not fully meet the requirements.

In cohort 1, one special case student was admitted. This candidate complied with all criteria, except the criterion specifying at least a HBO degree. The Admission Committee decided to admit this candidate because information showed that the candidate did successfully complete a number of higher education non-degree courses that when combined, were deemed equivalent to the HBO degree.

Special cases admission would be significantly supported by Assessment of Prior Learning (APL, in Dutch: EVC) procedures. Therefore, MRM took the initiative in the summer of 2009 to embark on a pilot with APL assessment. Results of this pilot will be available to the committee during the site visit.

### **Organization of and regulations regarding admission**

The Student Statute of the Faculty of Management and Governance outlines, among other things, the organization of admission. In compliance with this statute MRM has an **Admission Committee** consisting of:

- o Prof. dr. ir. O.A.M. Fisscher, chairman
- o Prof. dr. P.B. Boorsma
- o Dr. P. A.T.M. Geurts
- o Mr. H.C. Brouwer
- o Dr. J. van den Berg, DipM.

The admission approach was formalised in December 2008 via approval by the Faculty Council of the Faculty of Management and Governance of the Student Statute for the programme (see appendix 2.2.2-2).

In principle, all relevant disciplinary backgrounds are considered. The multidisciplinary character and the instructional concept of MRM explain why applicants from very diverse backgrounds can be admitted into the programme.

A mix of backgrounds even is beneficial for the programme, as each participant has something to contribute from his or her own perspective, for instance an engineering, an economic or an ICT perspective. As explained in 2.2.2, the broad outlook of the curriculum ensures that it provides broadening compared to the background of participants. It leads to graduates who are familiar with the most relevant (sub)disciplines of risk management, and can work with experts within each subdiscipline. Based on their prior education, they will have specific expertise in one area, combined with a certain degree of general or specific expertise in the field of risk management. The subjects are taught in such a way that also people that do not possess prior education in the field can take them successfully. The necessary academic level can be reached because most subjects focus quickly on the areas of relevance to risk management. In this way, lecturers can go in depth quickly. Of course, this can only be done if basic concepts of the discipline are taught as well.

The admission criteria match with the intended character of the programme (more information about this was already given in describing the instructional concept in section 2.2.2).

In addition to the standard procedure and criteria, MRM uses *special case* admission handling as well:

The intake procedure and criteria will be discussed regularly, for example in management meetings, especially based on experiences with the most recent group of students.

### **Ad 2. Intake in relationship to the intended character of the programme**

The MRM programme is intended for postgraduates with a clear affinity with integral risk management either as a result of their education or of their working experience, as well as for decision makers in public and private organizations who wish to become risk managers or risk consultants or who wish to expand their risk management capabilities in a general management position.



Table 2.2-6: Backgrounds of MRM participants of cohort 1 (2009 - 2011 intake)

No.	Current employer	Position	Relevant work experience	Highest level education
1	Drinking water company	Advisor asset management	17 years	HBO <sup>65</sup> Civil Engineering + HBO Technical Business Administration
2	Municipality	Senior policy advisor	22 years	HBO Governance, Policy & Management, Crisis management (Nijenrode Business School)
3	Dutch Senate organization	Security officer	27 years	HEAO <sup>66</sup> Economics/legal
4	Ministry of Defense (MoD)	Advisor process engineering services	30 years	Higher Business administration, General management programme, policy development programme MoD
5	Bailiff organization	Chairman of the Board	24 years	HBO, post-HBO and academic-level MBA
6	Electricity network provider	Risk analyst	3 years	TU Delft Technical Public Administration - section Energy and Industry
7	ICT company	Project manager	16 years	HBO Business Administration, PRINCE2 practitioner
8	Public prosecutor's office	Policy officer secure, protect and crisis coordination	6 years	Public management (University of Twente), masterclass risk management
9	Accountancy firm	Manager	10 years	HBO Business economics, certified accountancy programme
10	Government food and goods safety agency	Team leader	25+ years	Propedeutic year law Faculty University of Nijmegen (no diploma), HBO Food and diet
11	Government Inspection and safety service	Team leader	16+ years	Legal training (propedeutic plus follow-up course (OU), advanced programme on Management, organization and policy, NSOB <sup>67</sup> learning atelier on oversight and compliance
12	(Fire) insurance company	Manager Northern Europe/Senior ICT specialist	22 years	HTS <sup>68</sup> road and water construction, NIBE/SVV course on risk management

### Ad 3. Experiences and developments in admission

Before describing the experiences with the current admission process, first the plans for that process will be briefly outlined.

The performance of students will be regularly discussed by the programme management, e.g. during the annual evaluation meeting with (core) lecturers. Based on these discussions, over the years, the intake criteria and procedures will be further developed.

The experiences to date with the current admission process have evidently been rather limited. See the following below for details.

The MRM admission process, which was piloted in the second half of 2008 plus the first weeks of January 2009, has worked rather well. A very enthusiastic, capable and keen-on-learning group of twelve students has been the result. One aspect of a more general nature has required considerable attention, as have, to a lesser extent, a number of more anecdotal aspects:

- The general aspect is that quite a number of students had a statistics deficiency. For a subgroup of 2 to 3 of them, a dedicated small-sized pre-start statistics course was arranged and conducted. See appendix 2.2.5-1 for details. For the later entries, no separate pre-start course could be conducted because of time limitations. To remediate this situation, a dedicated small size course was run in conjunction with the MRM programme. This course was open to all students and elective for all but 4 students who were admitted with a deficiency. Eight students took the first lecture of this course (February 11, 2009) and 8 took the second course (March 11, 2009); seven students took both lectures. This latter course contained a self-test exam. Four students (three of which were obliged to remediate their statistical knowledge) passed the self test in June 2009. The remaining deficient student will do the self test in the summer of 2009.

<sup>65</sup> HBO is Higher Professional Education

<sup>66</sup> HEAO is Higher Economic Administrative Education

<sup>67</sup> NSOB is a higher education provider for the Dutch public sector

<sup>68</sup> HTS is Higher Technical Faculty, now part of the HBO structure.

Self evaluation by students combined with study counselling plus module evaluations will be introduced to ascertain the appropriateness of statistics deficiency remediation training. Where necessary, additional individual student remediation on statistics will be arranged.

- Five admitted students dropped out of the programme before or after seminar 1. Two students dropped out because of serious health problems (both a candidates for re-entrance in a later cohort). Three students had to drop out because, unexpectedly, funding of their participation failed. A number of admissals were granted before funds for participation were secured. Thus, in three cases already admitted candidates needed to decline participation. Although being a logical approach in filling the pipeline of the programme and enhancing the number of (potential) participants, costs for intaking are not negligible and also this type of rather dissappointing news is not good for morale among management, staff, lecturers and students.
- Some candidates took a web-based English language test ([www.dialang.org](http://www.dialang.org)); for a number of these candidates the test was obligatory, whereas for others the language test was voluntary. No remediation measures were required.
- In a limited number of occasions, candidates had a view of the programme that differed strongly from the intentions of MRM, a difference that became evident only in the later stage of the intake meeting. Programme management has ascribed this to the complexity of the domain of risk management. The procedure was modified to include a verification step before the actual intake procedure criteria were discussed. Also, candidates are offered an orientation meeting with the programme manager prior to the formal intake itself.
- As previously mentioned, one candidate was admitted as a 'special case'. His education portfolio does not include a formal academic or higher professional bachelor's diploma; this candidate was, however, admitted because his education portfolio and work experience was judged to be equivalent to a formal diploma. Part of the acceptance procedure for this candidate was a telephone interview with his superior.
- A rather large number of candidates expressed their appreciation for the rigour of the intake procedure - albeit that some candidates also indicated that they had not expected such rigour.

#### **Ad 4. Conclusions**

Overall, the policies and procedures developed and implemented for the intake, appear to be suitable. Minor additions and modifications will be made to the procedure in preparation for the cohort 2 intakes.

#### **2.2.6 Duration**

The programme has a total size of 70 EC. It is aimed at students who combine work and study, so the programme is delivered in parttime, for a duration of two calendar years of group education plus three months for the Case Research project.

This makes MRM a challenging programme, but reactions of cohort 1 students indicate they had expected this and appreciate this in view of the (post-experience) academic character of MRM. In general, students are highly motivated and are prepared to work hard.

## 2.3 DEPLOYMENT OF STAFF

### Introduction

This chapter provides information on the deployment of staff. The current professor and associate professor plan for the Faculty of Management and Governance is available as appendix 2.3-1 (in Dutch).

First, the requirements for academic education are described, then both the quantity and quality of staff are outlined.

### 2.3.1 Requirements for academic education

In line with the postgraduate, applied character of MRM, the staff involved in the programme consists of both academic lecturers, who focus on the academic development of the students, and lecturers from the professional field, who focus on the professional aspects of risk management.

Appendix 2.2.1-2 provides a set of CVs of the lecturers engaged in MRM. Tables 2.3-1a and 2.3-1b give an overview of the staff involvement.

Over two-third of the MRM lecturers also teach in regular ('initial') academic education and / or other academic educational programmes for professionals. Many have been involved in MRM from the start, providing a solid base and continuity of involved staff.

*Table 2.3-1a: Staff involved in teaching MRM - UT lecturers  
(please note that lecturers will also be involved in supervising the Case Research Projects)*

Title - before name / after name	Initials, (calling name)	Family name (yellow = core module lecturer) [▼] = core lecturer	Affiliation, Faculty or Service Centre/department	Research affiliation (summary)	Lecturing in (sub)module
Dr. / DipM	J. (Hans)	Berg, van den	S&O/ OD	PhD on heterogeneous catalysis	5 + 6 + 7.1
Prof. dr.	P.B. (Peter)	Boorsma [▼]	MB/ F&A	Recent: privatization, public sector economics, public expenditure cutting policies, economics of police, financial management in the public sector. PhD supervisor	1 + 5 + 8
Prof. dr. ir.	O.A.M. (Olaf)	Fisscher [▼]	MB/OOHR	Recent: innovation management, CSR, quality management. Recently appointed Honorary Professor by Leuphana Lüneburg University. Current: supervising two PhD students (integration of management systems; innovation in networks). Initiation: Corporate Responsible Innovation.	6
Dr.	P.A.Th.M. (Peter)	Geurts [▼]	MB/ POLMT	Quality of democracy (role of institutions in this quality) within Potential programme. IGS.	1a + 2a + 3a + 4a + 7a
Dr.	E. (Ellen)	Giebels	GW/ PCGR	Situational Crime Science, Leadership interventions in teams, Influencing and cultural differences in police interrogation. IBR.	4
Dr.	J.M. (Jan)	Gutteling [▼]	GW/ PCGR	Framework of Risk Information Sufficiency (FRIS); New model of public perception of nutri-genomics; Risk perception and water management; Sustainable Dutch apples.	4
Prof. dr. ir.	J.I.M. (Joop)	Halman [▼]	CTW/ BI	Risk management and project control.	7 + 7.2
Prof. mr. dr.	M.A. (Michiel)	Heldeweg	MB/ LEGS	Regulation, Europe and Innovation (REI) research agenda. Balance between Public Law and Private Law	7.3

Title - before name / after name	Initials, (calling name)	Family name (yellow = core module lecturer) [▼] = core lecturer	Affiliation, Faculty or Service Centre/department	Research affiliation (summary)	Lecturing in (sub)module
				regulation, Regulation in Environmental Law, Constitutional and Public Law	
Prof. dr. ir.	A.Y. (Arjen)	Hoekstra	CTW/ WEMWM	Creator of the water footprint concept (2002) and established the interdisciplinary field of water footprint and virtual water trade analysis, a research field addressing the relations between water management, consumption and trade.	1
Drs.	P.M. (Peter)	Hommel	B&A/ IS	--	1
Dr.	E.F.J. (Ellen)	Huurne, ter	GW/ PCGR	IBR. PhD topic: FRIS (see 'Gutteling'), NWO funded	4
Prof. dr.	M. (Marianne)	Junger	MB/ M&RV	IPIT. Social safety studies, e.g. concerning early childhood	1
Prof. dr.	R. (Rezaul)	Kabir	MB/F&A	Chair of Corporate Finance and Risk Management as per August 1, 2009. Previous research areas: corporate finance, corporate governance, capital market research, law and finance en investments	7.3
Dr.	M. (Margôt)	Kuttischreuter	GW/ PCGR	Risk psychology and risk communication, e.g. concerning Y2K, the digital risk map and electronic public services; The influence of aggression on TV on behaviour and feelings of insecurity in ageing people; the influence of information provision with respect to crime.	4
Dr.	J. (Jan)	De Leede	MB/ OOHR (and private company)	Innovation and HRM, e.g. virtual teams and employment relations	7.2
Dr. ir.	A.A.M.	Spil (Ton)	MB/ IS&CM	IT in healthcare, e.g. E-health business models	7.1
Dr. ir.	K. (Klaasjan)	Visscher	MB/ OOHR	Design of innovative organizations; Managing tensions in the innovation journey (IGS)	6a
Prof. mr.	P. (Pieter)	Vollenhoven, van	MB/ M&RV/IPIT	Chairman of the Research council for safety (in Dutch Onderzoeksraad voor veiligheid). The council focuses on independent policy research.	1
Dr.	H.G. (Harry)	Kaap, van der	MB/POLMT	Political representation	Extra-curricular/ statistics

Table 2.3-1b: Staff involved in teaching MRM - non-UT lecturers

Title - before name/ after name	Initials (Calling name)	Family name [▼] = core lecturer	Affiliation	Job title	Involvement in research	Lecturing in (sub)-module
Dr. Ir./ MBA	T. (Tjibbe)	Dokter	AkzoNobel Technology & Engineering bv, department SHERA/-Consultancy & Training	Manager Health, Safety & Environmental affairs. Member management team site Deventer	PhD on Explosion hazards of methyl chloride and chlorine containing systems	1
Dr.	M.J. (Menno)	Duin, van	NIFV nibra, Erasmus Univ. (and private company)	Dean Master of Crisis and Disaster Management/employee at NIFV nibra, lecturer Public Administration at Erasmus University. Also independent researcher/advisor	Long-term researcher in the area of crises and crisis management, e.g. at COT, Crisis Research Team. PhD on learning from disasters. MSc thesis supervised by prof. Rosenthal.	7.2
Drs.	G.A.M. (Geert)	Haisma [▼]	NAR	CEO, Nederlands Adviesbureau voor Risicomanagement, (NAR, Dutch Consultancy firm for Risk management) Enschede and Utrecht)		2 + 3
/MA	R. (Robert)	Hart, 't	NAR	Director, NAR		3
Drs.	R.E. (Erik)	Marle, van	NAR	Managing Director, NAR		3
/RA	J.C. (Carlos)	Neves Cordeiro	Marsh	Practice Leader Forensic Accounting & Claims Services (FACS), Marsh Risk Consulting, Netherlands		1
Drs. /RA CMA CFM CIA	M. (Marinus)	Pooter	Ernst & Young Advisory	Director - ERM Solution Leader Netherlands		1
Dr.ir./ MBA	M.Th. Martin)	Staveren, van	Deltares, Tech Univ. Delft	Senior risk management specialist, Deltares, and Lecturer Geo Risk Management, Delft University of Technology	2009 PhD on Risk, innovation management and Change management	6

### 2.3.2 Quantity of staff

As described in the introduction of this report the programme is new with a first cohort having started in January 2009.

#### Start-up capacity

Circa 98 % of the design and development activities for the programme has been completed in the period from mid 2007 till the report date. Remaining development activities are comprised of:

- (Finalization of) detailed development work of a number of modules, most notably:
  - Module 6
  - Module 7 (i.e. its submodules: special topics).

Capacity has been secured by agreements with the (core) module lecturers involved and by assignment of the 0.5 FTE MRM programme manager.

- Development or adaptation or adoption of a number of key procedures, most notably:
  - Module assessment and Case research set-up and project assessment.

Capacity has been secured by agreements with the core module lecturers involved and by assignment of the 0.5 FTE MRM programme manager. Also, the Exam Committee is formally in place and examiners have been assigned.

#### Capacity for continuation of the programme

Below, the staff available for continuation of the programme will be addressed.

There are three categories of staff that need to be addressed separately:

1. Scientific staff
2. Management staff, and
3. Support staff

#### **Ad 1. Scientific staff**

The minimum number of students enrolling in an MRM cohort is 12 and the maximum is 25.

The staff-to-student ratio is calculated by totalizing the individual amounts of time required by lecturers to do their module. The total amount of time, over a 2.25 year period, consists of two parts: (i) the lecturer time in preparing and delivering lectures and (ii) the lecturer time required for mentoring and assessment of the Case research project. Part (i) constitutes a total of  $21.2 \times 5 \times 800/100 = 848$  hours assuming an average hourly fee of €100. Part (ii) results in a maximum required capacity of  $25 \times 24 = 600$  hours. So, the grand total is calculated to be 1,448 hours, equivalent to circa 1 fte, for a group of 25 students. As a result, the staff-to-student ratio is approximately 1:25 (of course, the staff-to-student ratio goes to 1:12 with a group of 12 students). This is considered to be an appropriate ratio for the small scale postgraduate academic programme that MRM is. Staffing of lecturers is ascertained as follows: All required UT staff has been allocated by MRM (i.e. by the programme leader, the programme manager and by CEO). Non-UT staff has also been engaged by MRM. Generally speaking, the enthusiasm to participate is large. All lecturers already have time allocated in their schedules for running their parts of the programme.

For the engagement of the lecturers for Current topics (module A, see figure 2.2.2), ad hoc actions have been and will be taken. Prof. Van Vollenhoven has a key role here because of his comprehensive network. Mr. Tjibbe Joustra, the former director of NCTb, the Dutch National Terrorism Coordinator, and mr. Wouter Bos, Dutch minister of finance, have agreed their participation to date. Also, dr. Hans Heerkens, a UT assistant professor, has presented the topic of airline risk and crisis management on June 4, 2009, following the crash of a Turkish Airlines Boeing in The Netherlands, earlier that year.

#### **Ad 2. Management staff**

The management staff, consisting of the programme leader, the programme manager and the office manager has the following time available. The programme leader has a budget of 0.05 fte, the programme manager of 0.4 – 0.5 fte (depending on the number of students), and the office manager of 0.20 fte.

### **Ad 3. Support staff**

The programme is supported by the Faculty of Management and Governance and by the University of Twente and therefore all types of support staff from both are available for students and lecturers. A few examples:

- § There is support for making the Student Statute (in Dutch: OER).
- § There is support for library and ICT facilities facilities.
- § There is support for lecturers from the Educational Centre (in Dutch: Onderwijskundige Dienst) of the Student & Education Service Centre, SESC (in Dutch: S&O).
- § There is support for lecturers and students from the TCP Language Centre of the university.
- § There is support from both the Faculty and university communication officers for publicity and recruiting of students.

Continuity aspects of staff are covered in section 2.6.

### **2.3.3 Quality of staff**

The quality of staff criterion will be discussed based upon a breakdown into the following four aspects:

1. Content
2. Knowledge of the professional field
3. Educational skills
4. Organizational

#### *General information*

- § Most staff members (see CVs) have a proven track record as researchers and / or lecturers in other (regular and/or postgraduate and/or non-degree professional) educational programmes.
- § The Faculty of Management and Governance is well known for its regular, postgraduate and non-degree programmes, linking theory and practice, and its contribution to education in other university programmes.
- § University lecturers from other Faculties also have a proven track record as researchers and / or lecturers.
- § Non-UT lecturers, who focus mainly on the professional aspects of risk management, are experts in their fields and typically have extensive experience as lecturers or trainers.
- § Educational effectiveness and lecturer quality is important to MRM, including being easily approachable by students. The programme quality assurance system and the HRM policy and procedures deal with this.

#### **Ad 1. Content**

In section 2.3.1 it has already been pointed out that the MRM staff consists both of academic researchers and risk management professionals.

Lecturers are experts in their respective fields, as demonstrated also by their CVs and tables 2.3-1 in the previous section. It should be noted here that a number of academic lecturers have extensive research experience in areas that are highly relevant to risk management, but who have to date not published their work under that heading. An example is prof. Fisscher, who holds a chair on Organization Studies and Business Ethics, and who is the core lecturer of the MRM module on Organization of risk management, including ethics.

Some lecturers combine an academic track record with considerable professional risk management experience. An example is dr. ir. M. Th. van Staveren who in 2009 concluded his Ph.D. thesis on Risk, Innovation & Change at Twente University and who has been engaged in risk management consultancy assignments and general management for several years.

The reader is referred to appendix 2.2.1-1 for an overview of risk management-related research programmes.

#### **Ad 2. Knowledge of the professional field**

Most UT lecturers have working experience in the professional field and/or are still working in that field. Examples include Prof. dr. P.B. Boorsma, who chairs NNR, a risk management network (see section 2.1.1 for details). Prof. Boorsma has also organized risk management conferences in 2007 and 2009; Dr. J.M. Gutteling, who is strongly engaged in risk management communication assignments, and Prof. dr.ir. J.I.M. Halman who has worked for FMCG and consumer electronics firms and who currently chairs the scientific council of PRIMO Europe.

All non-UT lecturers are knowledgeable of the professional field.

#### **Ad 3. Educational skills**

The formal Human Resources Management policy of the University of Twente, the Faculty of Management & Governance and other involved Faculties applies to MRM. If pedagogical issues would arise, regular university



practices apply, including (additional) training of lecturers by SESC (see *General information* at the beginning of section 2.3.3); this is also covered in section 2.5. Faculty can make use of a comprehensive range of lecturer courses offered by SESC. New UT lecturers are urged - and recently: required - to follow a modular course, called DUIT<sup>69</sup> (in Dutch: Didactisch Universitair Inwerktraject Twente) in order to fulfil the basic educational and pedagogical quality required by the University of Twente. In addition to DUIT, novice lecturers need to obtain the Basic Qualification Education (in Dutch: BKO), for which staff can apply at SESC. SESC also regularly offers other courses in order to update knowledge and skills of more senior lecturers. Educational performance is part of the annual HRM appraisal of a lecturer with his or her superior.

In addition to the abovementioned formal policy and procedures, programme management oversees the performance of MRM lecturers as brought forward by informal sit-ins during lectures and by student evaluation surveys. If so required, programme management will contact a lecturer to discuss possibilities for improvement. When problems arise, programme management will contact the superior of a lecturer directly.

Since 2007 a special focus is put on the English skills of all lecturers of the university. All lecturers and staff have been or will be tested on these skills. Please note that the teaching language of MRM is Dutch, but an English language study trip is foreseen.

Non-UT lecturers were selected and engaged mostly on the basis of personal contacts or by reference from a personal contact. They typically have considerable experience in teaching, mainly of short courses. Non-UT lecturers are submitted to the same quality assurance evaluations as UT lecturers and are informed about the outcomes and guided and coached by the programme manager as required. When problems arise, the programme leader will contact the lecturer and also, if necessary, his superior. Non-UT lecturers may also enroll in (modules of) DUIT and/or take special training<sup>70</sup>.

Educational skills of lecturers are proven to be of a high standard in seminar evaluations.

Initial cohort 1 evaluation results<sup>71</sup> show that the quality of teaching in the seminars was evaluated at 8.1 (ten-point scale, 1 = very bad, 10 = excellent). Further, the presentation and teaching methods of all seminars were evaluated above the target value of 7 on subjects like contents of the lectures, overall teaching methods and on the exercises that accompany the theory.

#### **Ad 4. Organizational**

The programme is supported by a qualified programme manager and office manager. These persons are responsible for the organizational aspects of the programme. (The programme manager also has a number of lecturing tasks.)

<sup>69</sup> The University of Twente is a founding member of the charter for Basic Qualification Education (in Dutch: BKO)

<sup>70</sup> Re: e-mail M. van der Blij, 23 February 2009

<sup>71</sup> Appendix 2.5.1-2 Summary of evaluation results of seminars and modules to date and the Statistics course



## 2.4 FACILITIES AND PROVISIONS

### Introduction

This chapter provides information on both the material facilities and the provisions related to student support and guidance.

### 2.4.1 Material facilities

This section discusses the material facilities available for the MRM programme, especially with respect to housing and library facilities.

The programme is for the largest part accommodated by the Faculty of Management and Governance at the on-campus training and conference hotel Drienerburgh (see pictures below). During the Case research period and research project students in the Energy specialisation are accommodated in the off-campus Faculty of Management and Governance building Capitool or the on-campus replacement thereof, when construction is finalised. Study trips will be hosted on location.



One of the seminar rooms



Lobby also providing break-out seats



Restaurant for breakfast & lunch

### Housing facilities

At Drienerburgh, several well-equipped training rooms are available, of which one will be selected for the seminars. These rooms, with a capacity suited for 25 students, are equipped with whiteboards, flipovers, beamer, laptop and wireless internet access. Drienerburgh also has PC available for guests and a lobby which is suitable for breakouts in smaller groups. It also has breakfast and lunch facilities. Dinner is provided in the Faculty Club nearby.

Upon request, for the students printing and copying, and telephone and fax are available at a limited level. The programme manager or office manager can assist if more support is needed. With their (own) laptops they can connect - wireless - to the computer system, including internet.

In due course, firm arrangements will be made for student housing during their Case research project. Normally, students conduct this part of their studies off-campus at their own organization.

The Faculty of Management and Governance will move to a newly erected on-campus building called Ravelijn. It is expected that Ravelijn will also house MRM education in the near future.

### Computer facilities

Most students bring their own laptops. For module 3, during which students use the webbased NARIS© tool, the lecturer provides 6 laptops. Additionally required laptops can be provided via the Faculty of Management and Governance and/or the ICT service centre ICTS.

### Video facilities

All seminars are captured on digital video by a dedicated university crew<sup>72</sup> and subsequently the www links are provided to MRM students and staff. This is very helpful, e.g. when a student misses (part of) a seminar or wishes to review material prior to an exam. See appendix 2.4.1-1 for a list of example links to seminar videos.

In the evaluation of module 1, students scored an average 3.9 on a 5-point scale (5 = high) on the appreciation of the digital videofacilities. The low score for module 2, an average of 2.6, reflected poor audio quality of the digital recordings. Improvement actions were initiated already prior to the evaluation of module 2, including installing a simpler digital video camera with good audio quality as a backup.

### Library facilities

The University of Twente has worked hard the last couple of years to improve the library facilities. Not only the central building, the workspaces and the meeting rooms within the library has been substantially improved, also the collection (hard copies and digital copies, books and journals) was thoroughly revised and updated. For several years in a row, the university has reserved extra money for extending the collection. Staff and student assistants have been employed to work on a new acquisition policy that fits the research programme of the department. Further, a first start has been made to expand the book collection. Full texts of all relevant journals for the program can be accessed easily by both staff and students via the digital services of the library. Using their student account, students have access to search engines for scientific literature. At the library more than 220,000 books, 14,000 electronic journals, over 4,000 e-books, some 275 databases, 1100 videos, CD roms, business information and approximately 350 printed journals are available. The final theses of all students are digitally available in the library, in a separate repository. Part of this collection is in English. Also, general books like dictionaries and address books are available.

The hardcopy collection, too, can be searched on internet using the library catalogue. MRM students can visit the library in Enschede and / or can access the electronic library on the internet. They receive information about the facilities (and many other things) in a "General Information Guide"<sup>73</sup>. If a certain source is not available at the library of the University of Twente, students can order literature from other libraries using IBL (Inter-Library Lending network).

The libraries of other universities are accessible to MRM students through their University of Twente student card.

The opening hours of the recently renovated Enschede library building "Vrijhof" are:

- § Monday to Friday: 08.30 to 22.00 hrs
- § Saturdays and during exam periods (of the regular programmes) also on Sundays: 11.30 to 16.30 hrs (only for study; no lending of books). With the exclusion of announced holidays.
- § See: <http://www.utwente.nl/ub/>

Students can work inside the library at 370 quiet study places for individuals and groups, and at 70 PC work areas.

The faculty has an information specialist connected to the library who can assist students and staff, who supports the development of the faculty's collection and who teaches library skills in the course of the programmes.

The collection of the central university library contains a considerable collection of books and articles/journals on risk management., both physical and electronic. A small local collection of relevant books is available to students in the classroom in Enschede. This collection currently consists of some 10 books. Students receive a personal copy of a compilation of relevant background material on CD during the first seminar. It contains over 110 articles.

<sup>72</sup> [http://www.utwente.nl/icts/medewerkers/diensten/overige\\_diensten/Videolecture/dienstbeschrijving-videolectures.doc/](http://www.utwente.nl/icts/medewerkers/diensten/overige_diensten/Videolecture/dienstbeschrijving-videolectures.doc/)

<sup>73</sup> Available at site visit

### **Other facilities**

Student may use the sports and other facilities in Enschede for the regular fees. During the programme, the office manager and programme manager are available for practical support concerning material facilities and a broad range of questions, relating to both the study programme as well as other issues.

The first study trip has been planned early on in the programme to support group cohesion. Also, students are stimulated to dine and sleep at the Drienerburgh facility during seminars for the same reason.

## **2.4.2 Student support and guidance**

This section discusses the provisions for student support and guidance, including information supply.

### **Study counseling and information supply**

#### *Study counseling*

- § Study counseling is based both on an informal, open-door policy and on structured contacts:
- § The office manager and programme manager have an open-door approach, using a high degree of personal contacts. Contact is bidirectional: the managers contact students, and vice versa.
- § Regular coordination meetings between programme manager, office manager and students.
- § Students are invited for a meeting with the programme manager when the latter signals (potential) study delays. For this purpose, a progress monitoring tool, based on Microsoft OneNote, will be used for monitoring and recording of progress. Alternatives under study include an Access database (already in use at CEO) and Osiris (described elsewhere)

#### *Information supply*

Information is provided in written form – via letter and e-mail – and through personal contacts. Personal contacts include brief explanations at the beginning of a lecture and periodical ‘coordination meetings’ that are held 4 to 5 times during the course work period.

Important written sources of information are the timetable, the Rules for examination, the rules of the programme and the ‘Case Research Guidebook’.

During the Case research project, the supervisors keep in touch with the students either in person or using e-mail or the university course management system ‘TeleTOP’ (which is to be replaced by BlackBoard in the fall of 2009).

If so required, a student can contact one of the other programme managers of CEO, the Continuing Education Office, for assistance. This may be relevant if the relationship between the student and the MRM programme manager is somehow stressed. Students can also contact university student deans and psychologists for additional support.

## 2.5 INTERNAL QUALITY ASSURANCE

### Introduction

Policy statements<sup>74</sup> at the level of the University of Twente and of the Faculty of Management and Governance confirm that internal quality assurance is considered to be vital. The Faculty complies with university developments towards (enhanced) governance of educational programme quality.

In summary, the current university system of internal educational quality assurance focuses on:

- the annual planning and control cycle which involves the deans of all Faculties;
- lecturer quality through HRM procedures and the training and certification programme DUIT / BKO described elsewhere;
- centralised quality assurance of minor modules (for regular bachelor's programmes)
- explicit procedures for (re)accreditation;
- facilitation and support by the Educational Centre.

Preparations are made to implement an internal quality assurance system at the level of the university. This system is also expected to enable meeting the requirements of the new two-tier accreditation system expected to be implemented in The Netherlands in 2010.

The internal quality assurance systems of the Faculty of Management and Governance and of MRM share the following important characteristics:

- The approaches are structured, systematic and based on the Deming cycle; they use measurable performance targets.
- Evaluations take place ranging from the level of courses (MRM: seminars and modules) to the programme as a whole. Also, the masters' thesis period (MRM: Case research period) is evaluated.
- All educational programmes of the Faculty are invited to conduct a - currently voluntary - mid-term review in the 6-year period between accreditations.
- Stakeholders are involved in the quality assurance: students, lecturers, the professional field and alumni. The existing Faculty evaluation survey amongst lecturers will be expanded to include postgraduate programmes as well.
- Lecturer quality is part of the Faculty HRM policy and procedures.
- The Programme Committee and Exam Committee are involved in quality assurance, in compliance with legal requirements.
- The Faculty Annual Calendar procedure for programme revisions is adhered to.

Also, the Faculty will expand the procedure for structured creation and supply of quality assurance information to Programme Committees to also include postgraduate programmes (MRM). The Faculty has a quality assurance coordinator, who is increasingly involved in the quality assurance of postgraduate programmes.

Because of the postgraduate nature of MRM, differences with the regular Faculty educational programmes also exist. Specifically, these are the target group, the monthly seminars and the small scale of the programme. The MRM internal quality assurance system, adapted to these specifics, is represented in the next sub section.

### 2.5.1 Systematic approach

The MRM programme is periodically evaluated, using measurable targets and a cyclical PDCA approach. Based on these evaluations improvement measures are formulated and implemented. The *object* of the cyclic approach can be either the *education* or the *evaluation of the quality of education*. The cycles are described below.

The programme leader is responsible for the profile and the final qualifications of MRM, and also for the setup of the educational programme and its quality.

<sup>74</sup> E.g. Route '14 (Twente University) and Faculty annual plan 2009

The programme uses the Educational Evaluation Matrix (EEM, in Dutch: OWEM) instrument as the basis for its quality assurance. EEM was originally developed for and used in the - successful - reaccreditations of most programmes of the Faculty of Science and Technology<sup>75</sup>. The advantage in using EEM is twofold: first, it allows coverage of all relevant (accreditation) criteria in evaluation. Second, it allows for eliminating redundancies, thus reducing evaluation load for students, lecturers and staff. An example, in which both advantages are combined, is coherence: programme coherence will be evaluated not at the seminar or module level, but at the year or programme level.

The description of the cycles of evaluation follows a five point subdivision:

1. Cycle of evaluation
2. Seminar (evaluation)
3. Module (evaluation)
4. Year (evaluation)
5. Programme (evaluation)

### **Ad 1. Cycle of evaluation**

#### Prerequisites for the evaluation of teaching and learning

- a. The evaluation of instruction must comply with the demands of the relevant accreditation bodies, most notably the Dutch-Flemish Accreditation Organization (NVAO). This implies that:
  - § Measurable targets are defined to be used for the evaluation of teaching and learning.
  - § The evaluation of teaching and learning takes place in a structured approach.
  - § For those aspects of instruction requiring improvement, actual improvement measures are defined and implemented and evaluated as to effectiveness.
  - § As of the result of the above, so-called closed "Deming" or "PDCA cycles" (PDCA = Plan, Do, Check, Act) exist.
  - § Students play an important role in the evaluation of teaching.
  - § The professional field and alumni, when they are available, are involved in curriculum evaluations.
- b. The evaluation efforts must be balanced with the evaluation preparedness of the organization (lecturers and students); this is especially important to prevent or combat "evaluation fatigue".
- c. Next to structural and systematic evaluations, the programme must also be able to respond to improvement signals when these arise. Therefore, instruments and procedures will be in place to detect those signals and to conduct ad-hoc evaluations and potentially take actions. Students can submit their complaints to the office manager and the programme manager of MRM. In addition to this, students can also contact the Faculty's quality assurance coordinator in case of complaints.

This section describes the procedures and their position in the operational Faculty system of quality assurance.

The evaluation of teaching and learning constitutes an important part of the "annual cycle" during which a **Deming cycle for the academic year** is executed. This cycle caters for four consecutive and interrelated activities:

- a. To define and translate curriculum and modules for the proceeding academic year into the student statute, programme and modules (**P**lan).
- b. The actual execution of the planned educational programme (**D**o).
- c. Ascertaining whether the programme is effective and whether the means that are deployed for instruction contribute to the goals set for the programme (**C**heck).
- d. Analysing problems and developing proposals for improvement (**A**ct). See text below.

The basis for the **PDCA cycle for instruction** is the formalised programme. The evaluations of teaching provides an important source of information for the Check phase and are an important input for the analysis of problems and the development of proposals for improvement. The adaptation of the programme in the proceeding academic year (Plan phase) results from this preceding Act phase. The translation of evaluations into improvement actions in the annual Faculty cycle is of crucial importance. This way, the Deming cycle is "closed".

In addition to the PDCA cycle for the programme, a **PDCA cycle for the evaluations** is defined. In the Plan phase of this cycle measurable targets and the scope of the teaching-to-be-evaluated are determined. The Do phase consists of executing the evaluations. Periodically, both the measurable targets and the evaluation

<sup>75</sup> See e.g. the self-evaluation report of the Applied Physics programme (2006)

process as a whole are assessed in the Check phase. Resulting improvements in the Act phase constitute the input for the Plan phase thus closing the cycle.

Evaluations are conducted at four levels: (part-of-a-)Seminar, Module, Year and Curriculum. These evaluation levels will now be described 'from the bottom up'.

### **Ad 2. Seminar (evaluation)**

All seminars are evaluated on a daily period basis. The programme manager takes care of the execution of the evaluations in such a way as to obtain a high response rate ( $\geq 75\%$ ) of students. Frequently, lecturers are asked to immediately reflect on evaluation results as they become available at the end of each seminar day.

Evaluation of a seminar is done using a standard survey form (see appendix 2.5.1-1). In table 2.5-1 the measurable targets for seminar evaluations are given. Please note that parameters involve perceptions of students, e.g. as to the lecturer being 'competent' and the literature being 'good'.

*Table 2.5-1 Measurable targets for seminar evaluations (daily period basis)*

Parameter (summarized)		Target value	
General judgement		Average reported rating by students in survey is 7 or higher (10-point scale)	
Content	Relevance of content	Average reported rating by students in survey is 3 or higher (5-point scale)	
	Sufficient level of development of content		
	Clear and structured presentation of content		
Lecturer	Lecturer is competent		
	Lecturer is interactive		
	Lecturer is inspiring		
Literature	Literature is well readable		Average reported rating by students in survey is 3 or higher (5-point scale); or: N/A
	Literature was a good preparation for the seminar topic		
	Literature was covered sufficiently during the day		
Exercises	Exercises were a good illustration of theory		
	Exercises had a good form		
	Exercises were mentored well		
	Exercises were useful		

### **Measures of improvement**

The results of the seminar evaluations can trigger a lecturer to initiate measures of improvement. The programme leader and lecturers receive the results of the evaluated seminars as soon as possible after the seminar. At the proposal by the programme manager – and based on the measurable target values - the programme leader determines which lecturers need to be consulted regarding eventual changes at the seminar level. In formulating measures of improvement for individual seminars MRM staff can consult experts from within the Faculty (e.g. of the Office of Educational Support (in Dutch: BOO) or within the university (e.g. the Educational Centre (in Dutch: Onderwijskundige Dienst) of the Student & Education Service Centre, SESC (in Dutch: S&O).

The programme leader is accountable for minuting and archiving the agreements made with lecturers, thus developing a programme dossier.

Insofar as the results of seminar evaluations require measures to be taken regarding the competency development of lecturers, the programme leader contacts the chairman of the relevant department. This chairman reports the outcomes with the lecturers involved and makes agreements as to improvement measures. The chairman reports back to the programme leader.



In addition to the summative, written evaluation of separate seminars, lecturers are motivated to also conduct verbal evaluations during the provision of the seminar. Thus, seminars can already be adapted during execution. The programme manager can facilitate these interim evaluations.

Specific signals from students or lecturers may require specific *ad hoc* evaluations to be performed. See the following box:

The ad hoc evaluation on self study load described elsewhere in this report is an example. See also appendix 2.5.1-2 for a summary of seminar and module evaluation results to date.

Evaluation of the quality assurance system itself will be carried out on a regular basis. Improvement measures may include setting higher standards for target values to support further quality improvement of the quality of MRM.

### **Ad 3 Module (evaluation)**

Each module is evaluated separately, after the exam but before the exam results are published. Items for evaluation include coherence with the previous module, study feasibility, facilities and examination. Also, the results of the evaluations of the individual seminars are inputs for the evaluation at the module level, as are comments (complaints) of lecturers and students during the execution of the module. Likewise, the measures of improvement as implemented on the basis of the evaluation meeting of the preceding year for the same period are inputs.

A module evaluation meeting is conducted with all students and is facilitated by the programme manager. During the module evaluation meeting the perspective for the evaluation of teaching and learning in the preceding period is one level higher than the seminar level, by focusing on: intake (module 1 only), connection with previous parts of the programme, cohesion, organization, examination, build-up, facilities and study materials.

The programme manager reports the outcomes of the module evaluation meetings and takes care of archiving. Based on the module evaluation meeting seminar-overriding measures of improvement are planned and implemented in close collaboration with the lecturers and the programme leader.

Module evaluations will differ among each other, because they differ in content, form and size. The Case research project module evaluation can only take place when a sufficient number of students have completed their thesis.

Figures 2.5-1a and 2.5-1b depict the evaluation of seminars and modules.

Figure 2.5-1a Seminar and module evaluations - part 1

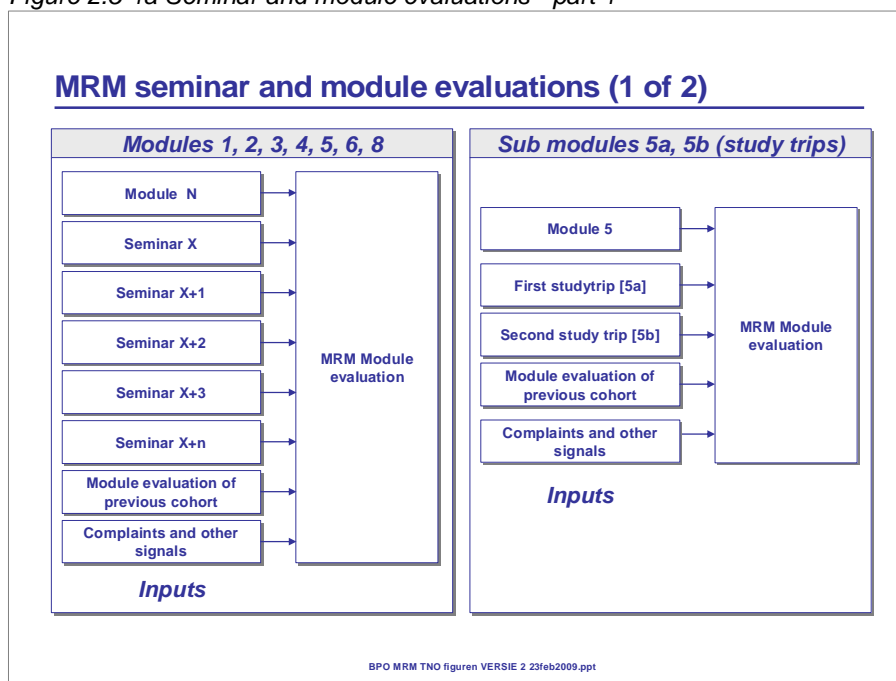


Figure 2.5-1b Seminar and module evaluations - part 2

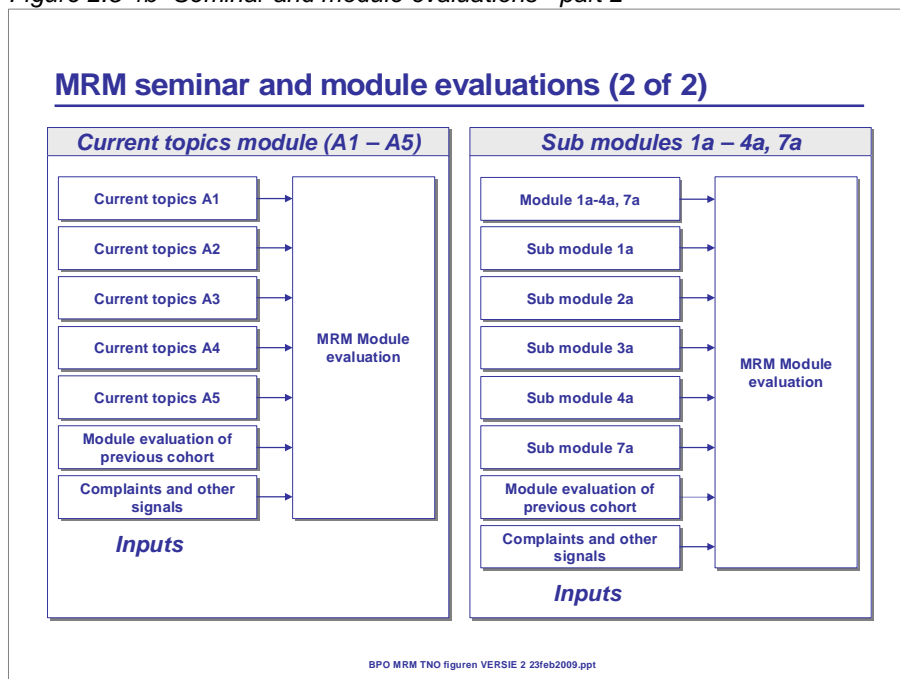


Table 2.5-2 provides the Measurable targets for module evaluations.

Table 2.5-2 Measurable targets for module evaluations

Parameter	Target value (average reported rating by students in survey)	
Overall judgement	7 or higher (10-point scale)	
Coherence	3 or higher (5-point scale)	
Organization of education		
Guidance		
Study materials (books, handouts, readers)		
Study documentation (e.g. time-table, seminar descriptions, lecturer CV's)		
Study load		
Study facilities (Drienerburgh)		
Digital video recording		
Form of exam		
Match between exam and module content, in terms of subjects and level		
System of seminar evaluations		
<b>In addition, specifically for module 1:</b>		
Admission procedure		3 or higher (5-point scale)
Information provision to candidates (in person)		
Information provision to candidates (not in person)		
Match between previous education and module 1		

When appropriate, seminar and module evaluation results from students are input for the core lecturer's meetings. All evaluations are submitted to the Educational Committee, both in full and summarized form.

#### **Ad 4 Year (evaluation)**

The year evaluation is based on the (seminar and) module evaluation results. There is an annual meeting during which an annual report, drafted by the programme manager, is discussed with the lecturers. The year evaluation is conducted by the programme leader and the programme manager. Measurable targets specific to the year evaluation are provided in table 2.5-3. A final report of the year evaluation is discussed with the



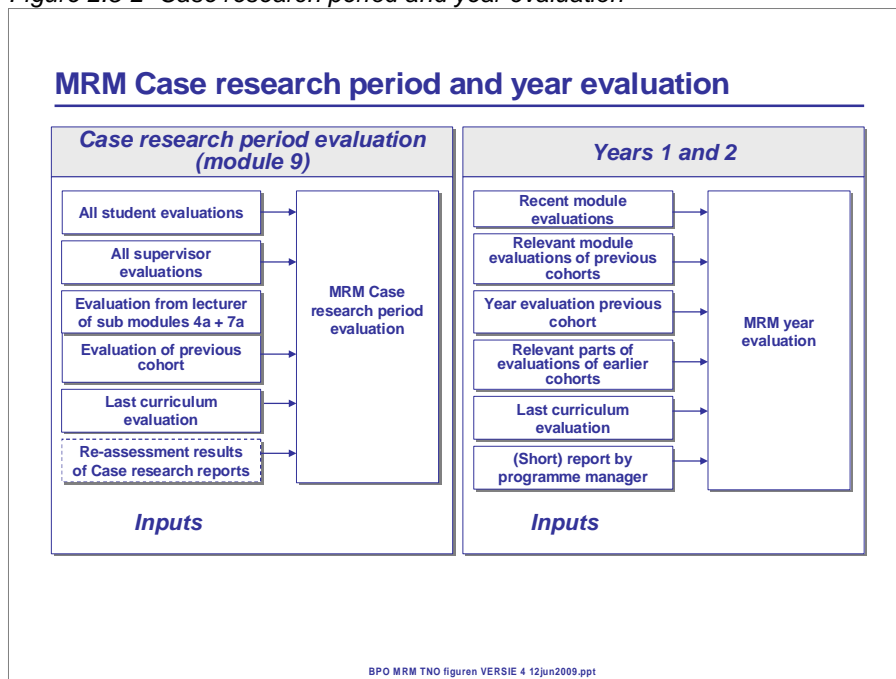
Director of continuing education and copied to the Faculty programme director's meeting and the Exam Committee. The latter two gremia can request discussion of the report of the year evaluation.

Table 2.5-3. Measurable targets for year evaluations

	Parameter	Target value
YEAR EVALUATION	Overall judgement	7 or higher (10-point scale) (average reported rating by students in survey)
	Instructional concept and operationalisation thereof	3 or higher (5-point scale)
	Coherence across modules and learning pathways	
	Handling complaints	
	Handling improvements in the programme	
INPUTS FROM MODULE EVALUATIONS	Organization of education	3 or higher (5-point scale)
	Guidance	
	Study materials (books, handouts, readers)	
	Study documentation (e.g. time-table, seminar descriptions, lecturer CV's)	
	Study load	
	Study facilities (Drienerburght)	
	Digital video recording	
	Form of exam	
	Match between exam and module content, in terms of subjects and level	
System of seminar evaluations		
OTHER INPUTS	Average study efficiency (EC per year, cumulative)	18 EC (year 1) 52 EC (year 1+2)
	Student performance in exams	90% pass at first sitting while maintaining exam quality

Figure 2.5-2 depicts the evaluation of the Case research period and year.

Figure 2.5-2 Case research period and year evaluation



Tabel 2.5-4 gives the measurable target values for programme efficiency and yield.

Table 2.5-4: Measurable targets for programme efficiency and yield

Duration of study (years)	Target graduation yield of cohort (%) (not corrected for drop-out)	Target average efficiency of the cohort (in EC) (not corrected for drop-out)
1	0	15
2	0	37
2.5	70	49
3	90	63

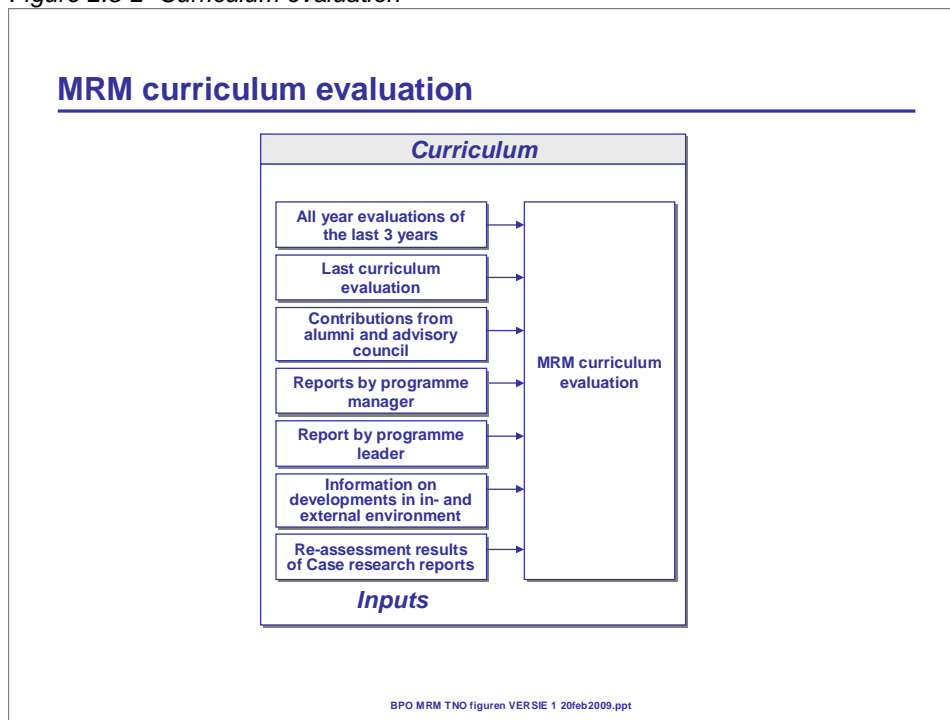
Comments to table 2.5-4:

1. *Efficiency* (i.e. study progress) is used as a monitoring parameter, as *graduation yield* cannot be used as monitoring parameter. Efficiency targets were set on a linear timescale.
2. The 90% target value after three years should be interpreted as that on average 10% of students leave the programme without graduating.
3. Please note that because of the rather limited cohort size of postgraduate education, small numerical changes in efficiency can have a large effect on percentage values.

#### Ad 5 Curriculum (evaluation)

Under the responsibility of the Director of continuing education, every three years an evaluation of the entire programme takes place in conjunction with the core lecturers. Inputs for these curriculum evaluations are the seminar evaluations, the module evaluations, the year evaluations, the input from the professional field (including alumni), any other relevant internal or external developments and all implemented measures of improvement in the preceding time span. The programme, goals, final qualifications and learning pathway(s) are also within the scope of the evaluation. The outputs of the curriculum evaluation are measures of improvement at the curriculum level.

Figure 2.5-2 Curriculum evaluation



#### Faculty annual cycle procedure

As a part of the Faculty's annual cycle procedure, measures of improvement (at seminar level and surpassing the level of seminars) will be used to develop an improved curriculum, the Student Statute and seminar and

module information. The timeframe for policy development and policy decision making used in the Faculty's annual cycle is provided in appendix 2.5.1-3. MRM will feed in to this cycle at the required times, especially with respect to the formal establishment of curricula and the Rules for the study programme by the Faculty programme directors (end of November and January) and Faculty Council (end of January and end of April).

## 2.5.2 Involvement of staff, students, alumni and the professional field

In this sub-section the involvement of (1) staff, (2) students, (3) alumni and the professional field in the internal quality assurance of MRM will be covered.

### 1. Staff

The involvement of staff in the internal quality assurance is expressed as follows:

- § The Programme committee<sup>76</sup> is constituted by (students and) staff.
- § The Exam Committee consists of staff.
- § Half of the Faculty council members are staff.
- § Lecturers are involved in curriculum evaluations.
- § Lecturers have an essential role in seminar and module evaluations in terms of supporting and carrying through the implementation of improvement measures.
- § Year evaluations are conducted by among others the core lecturer's team.
- § MRM organizes a number of annual core lecturer's meetings during which quality (assurance) is a topic.
- § As mentioned earlier in this report MRM will issue a regular newsletter for staff and students.
- § In all the above-mentioned instances the programme leader, programme managers and programme coordinator also have a significant role.

### 2. Students

The involvement of students in the internal quality assurance is expressed as follows:

- § Students can freely report signals, complaints and problems to the programme manager and/or office manager, verbally or via e-mail. The programme manager and/or office manager invite students regularly to express their opinions.
- § Students are involved in evaluations at various levels (seminar, module, etc.).
- § Students have many (informal) contacts with the programme managers and programme coordinator, of "water cooler" nature and in study trips, during which informal quality information can be provided by students.

### 3. Alumni

Alumni surveys will be carried out on a routine basis. Recently graduated alumni can express their opinions mainly on the programme, whereas alumni who graduated longer ago provide input from various sub-sections of the professional field. Alumni surveying will be an integral part of the curriculum evaluation. Most likely, alumni contact will be supported via LinkedIn, as is currently being piloted by the Master of Public Management programme.

### 4. Academia and professional field

A newly to be established Board of Advisors will consist of representatives of both academia and of the professional field. For this Board of Advisors a longlist has been developed. Of this longlist, Prof. Van Vollenhoven and Mr. Roelofs (RisNet) have already agreed to participate.

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<sup>76</sup> Please refer to appendix 2.2.2-2 for regulations of the Programme committee.

## 2.6 CONDITIONS FOR CONTINUITY

### 2.6.1 Graduation guarantee

In line with customary procedures in The Netherlands, there will be no provision of guaranteed graduation for individual students as such. However, current policies<sup>77</sup> guarantee that all students starting the programme will have ample opportunities for completion. Modules and exams will be offered with sufficient frequency for students to complete the programme in a timely manner. As a result, students should be able to complete the programme within an acceptable timeframe. Of course, it depends on the abilities and efforts of the students whether they indeed do complete the programme.

The above is substantiated further by the 'Financial continuity statement MRM programme' (appendix 2.6.1-1), which states that two months before the start of any new cohort there is an unconditional guarantee, and under no circumstances from that moment onwards the programme will be disrupted because of budget considerations. This implies that from that point onwards the exam regulations apply. These exam regulations describe the right to a number of exams and other relevant issues that guarantee opportunities for completion of students.

### 2.6.2 Investments

Design and development commenced at the beginning of 2007, and proceeded until December 21, 2008. The development work of the lecturers involved is included in the fee for their teaching activities. The staff costs plus travel expenses (circa €5000) of the core development team (mainly prof. Boorsma and dr. Van den Berg) amounted to circa €150k (equal proportions). This has been absorbed by the Faculty of Management and Governance.

Section 2.3.2, Quantity of staff, outlines additional development work; these costs are also included in the fee for the teaching activities of the lecturers involved.

For the preparation of accreditation by NVAO of the programme an additional budget of circa € 40k is required. This has been taken into the 2009 budget of CEO of the Faculty of Management and Governance.

No investments in facilities and equipment are needed for MRM. Further development of a small, dedicated, local library will fit within the general budget of the Service Department of Library & Archive (B&A) of the university.

The Dean of the Faculty of Management and Governance has agreed on a ten-year depreciation period for the MRM investment costs.

### 2.6.3 Financial facilities

This section thus focuses on the operational financial forecast of the MRM programme. First, we will discuss the forecast. Second, we will discuss how continuity is guaranteed in case of operational financial losses.

#### ***Intake forecast***

The forecasted intake of MRM is 20 students per cohort<sup>78</sup>. Please note that an intake of 25 participants is considered to be the maximum, based on quality considerations and the intended character and atmosphere of the programme. This forecast is based on qualitative market research (see appendix 2.1.1-2) and experiences with cohort 1 and the level of applications for cohort 2 to date. NVAO accreditation and, through that, CROHO registration, is expected to have a small upward effect on the intake.

Next to the ongoing efforts on recruiting by programme management and the CEO marketing officer, there is increasing attention for recruiting for MRM through the following channels:

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<sup>77</sup> Rules for the MRM study programme (Dutch: OER)

<sup>78</sup> The first cohort size is smaller, due to 2 students falling ill, 3 students failing to obtain funding, and a late start of marketing of the programme

- The start of cohort 1 raised considerable press attention in various media, not in the least because of the participation of prof. mr. P. van Vollenhoven, who is a high-profile public figure and member of the Royal House of Orange.
- The University of Twente puts increasing attention to recruitment, and MRM is included in these efforts. UT is a regular visitor of several education fairs, and also represents MRM.
- The Continuing Education Office strives for growth of the post-graduate education of the Faculty of Management and Governance<sup>79</sup>. This includes additional efforts in communication and recruitment for postgraduate programmes of the Faculty (including MRM), in cooperation with the Communication staff of the Faculty and the university.

### **Financial forecast**

The financial result of the programme evidently is primarily dependent on the number of students: revenues are wholly based on the number of students whereas costs are mainly fixed (see table 2.6-1). In addition, the financial result is dependent on the set up of the programme, for example, sharing resources or facilities with other programmes or institutes of the University. For example, it was decided to host the programme on the university campus in Enschede instead of at a central location like Utrecht, to save on transport and lodging costs of (UT) lecturers

Table 2.6-1 shows the financial forecast of MRM. To show the relationship ('what-if?') between the size of the student group and the revenue status, a number of student group sizes are provided. The table shows that the break-even point is between 11 and 12 students.

The actual number of students in the first cohort number is 12. The target for the first 3 years is 15 students per cohort. Subject to take-in volume, a new cohort will start each year. The somewhat below-target, but financially still viable, number of students in cohort one is due to limited awareness of MRM among potential candidates, which in turn is due to its novelty and the fairly limited level of marketing communication activities. Also, as mentioned elsewhere, 5 candidates for cohort one had to drop out because of health or funding difficulties.

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<sup>79</sup> See Appendix 2.6.3-1; Strategic Plan Continuing Education Office

Table 2.6-1: Cost and revenues projection of MRM (per programme)

Fee = € 28,900	Number of students				
	10	12	15	20	25
<b>TOTAL REVENUES</b>	<b>289000</b>	<b>346800</b>	<b>433500</b>	<b>578000</b>	<b>722500</b>
<b>COSTS</b>					
<b>Programme leader (fixed)</b>	18900	18900	18900	18900	18900
<b>Programme mngr (fixed)</b>	69300	69300	69300	69300	69300
<b>Programme mngr (var.)</b>	0	0	5775	11550	17325
<b>Core lecturers (fixed)</b>	12800	12800	12800	12800	12800
<b>Lecturers (fixed)</b>	76800	76800	76800	76800	76800
<b>Lecturers (variable)</b>	14400	17280	21600	28800	36000
<b>Seminar rooms (fixed)</b>	8550	8550	8550	8550	8550
<b>Seminar costs (variable)</b>	5000	6000	7500	10000	12500
<b>Study trips (variable)</b>	18000	21000	25500	33000	40500
<b>Support (fixed)</b>	31500	31500	31500	31500	31500
<b>Support (variable)</b>	0	0	1000	3000	5000
<b>Marketing (fixed)</b>	50000	50000	50000	50000	50000
<b>Intake (variable)</b>	1625	1950	2438	3250	4063
<b>Office costs (variable)</b>	2500	3000	3750	5000	6250
<b>Literature (variable)</b>	2500	3000	3750	5000	6250
<b>Unforeseen expenses (5%)</b>	15666	16087	17056	18495	19934
<b>TOTAL COSTS</b>	<b>328991</b>	<b>337817</b>	<b>358168</b>	<b>388395</b>	<b>418622</b>
<b>GRAND TOTAL</b>	<b>-39541</b>	<b>9434</b>	<b>75782</b>	<b>190055</b>	<b>3034328</b>

**KEY**

- ▶ Total revenues (fee equalled € 26,800 - special introduction price - for cohort 1)
- ▶ Programme leader 0.05 fte @ €120 per hour, times 2.25 years (1 fte equals 1,400 hrs)
- ▶ Programme mngr (fixed) 0.4 fte @ €55 per hour, times 2.25 years (potentially reduced to 0.25 fte per group with two semi-parallel groups)
- ▶ Programme mngr (var.) 0.1 fte @ €55 per hour, times 2.25 years at 25 students
- ▶ Fixed core lecturer costs @ €1,600 per module per cohort @ 8 modules (modules 5 and 8 are covered by the programme leader / manager budgets)
- ▶ Fixed lecturer costs @ €800 per part-of-a-day, including preparations and follow-up activities; 19.2 seminars @ 5 parts-of-a-day (study trips evoke no lecturer costs other than already budgeted programme leader / manager costs)
- ▶ Variable lecturer costs @ €120 per hour for mentoring the Case Research project. 12 hours per project
- ▶ Seminar rooms (fixed) 19 seminars @ €450 (study trips evoke no seminar room costs)
- ▶ Seminar costs (variable) coffee, tea, lunch @ €25 per student per seminar
- ▶ Study trips (variable) are the travel & lodging costs of students and staff; other staff costs are included in programme management
- ▶ Support (office manager) @ €50 per hour, 0.25 fte times 2.25 years
- ▶ Marketing: estimate of Mrs. Iliohan, March 4, 2009; 20 k€ fee costs, 30 k€ advertisements (Mr. Neijzen)
- ▶ Intake 2 hours per candidate, @ €65 per hour, 25% more than actual participants; other costs are included in Programme manager
- ▶ 5% unforeseen costs in view of relatively high degree of uncertainty in certain budget elements

**Continuity guarantees**

As demonstrated by the aforementioned 'Financial continuity statement MRM programme' (appendix 2.6.1-1) continuity guarantees for MRM are in place. In addition to this, the strategic plan of CEO (Continuing Education Office), included in appendix 2.6.3-1 provides a strong policy basis for the programme.

#### **2.6.4 Staff continuity**

Staff continuity is warranted. See Appendix 2.3-1 for the Faculty of Management and Governance Professor and Associate Professor plan. **Two key UT members of MRM staff are close to retirement. Prof. Boorsma, the programme leader who officially retired in mid 2009, has formalised an agreement to continue his tasks until 2011.** A number of potential successors is available from within the university. Dr. Geurts, the core lecturer of Cases and Methodology, to retire by the fall of 2009, will also contractually and physically continue his tasks for at least the duration of the first MRM cohort. His eventual full retirement can be accommodated by one of the other methodology lecturers from the Faculty of Management and Governance.



### **3. OUTLOOK**

In the near future, the programme language of MRM will be changed to English instead of the current Dutch, to attract international students, specifically from Germany and Belgium. Next to implementing English as the language of teaching and learning, the programme will also need adaptation to cater for the wider geographical scope and differences in risk management practices and regulation.

In addition to the continuation and further development of the master of risk management programme, CEO will also develop short courses on risk management, in collaboration with GVRM and/or PRIMO. For these short courses, MRM concepts, materials and lecturers will be used and engaged.