EDUCATIONAL ASSESSMENT

FOOD SCIENCE, TECHNOLOGY AND NUTRITION

An evaluation of the quality of the Erasmus Mundus Master of Science in Food Science, Technology and Nutrition

VLHORA

Vlaamse Hogescholenraad

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PART I

GENERAL PART

CHAPTER 1   THE EDUCATIONAL ASSESSMENT OF THE ERASMUS MUNDUS MASTER OF SCIENCE IN FOOD SCIENCE, TECHNOLOGY AND NUTRITION

1.1   INTRODUCTION

In accordance with its mission, the assessment panel (henceforth: the panel) presents its findings and its evaluation of the Master of Science in Food Science, Technology and Nutrition in this report.

This report will serve as a basis for the accreditation of the programme. In accordance with the VLIR|VLHORA guidelines, the panel assessed 6 subjects and 21 aspects, which correspond to the criteria used by the 'Accreditation Organization of the Netherlands and Flanders' (NVAO) for the accreditation of programmes.

This initiative is part of the activities of the university colleges and the VLHORA with regard to quality assurance in university college education, as is defined in article 93 of the Flemish Higher Education Act (April 4, 2003).

1.2   THE ASSESSED STUDY PROGRAMME

The Master's programme in Food Science, Technology and Nutrition is organised by the Katholieke Hogeschool Sint-Lieven, Dublin Institute for Technology, Anhalt University of Applied Sciences and Universidade Catholica Portuguesa.

The master's programme is officially recognized and supported by the Education, Audiovisual and Culture Executive Agency (EACEA) of the European Union.

The assessment panel visited the Katholieke Hogeschool Sint-Lieven from 19 to 20 May 2011.

1.3   THE ASSESSMENT PANEL

1.3.1. COMPOSITION

The assessment panel is composed in conformity with the 'Educational Assessment Visits Guide VLIR|VLHORA' (i.e. 'Handleiding Onderwijsvisitaties VLIR|VLHORA, Brussel, september 2008'). More specifically, the Higher Education Recognition Commission's guidelines that deal with the panel members' independence were followed for the panel's composition. The composition was eventually ratified by the Recognition Commission on 30 November, 2010 as well as by VLHORA's board of directors during its assembly on 3 December, 2010.

The panel assigned to evaluate the Master of Science in Food Science, Technology and Nutrition includes the following members:

Chairman	prof. dr. Guido Van Huylenbroeck
Educational expert	drs. Ton Kallenberg
Academic expert	prof. dr.ir. Harry Gruppen
Academic expert	prof. dr. Paul Hughes
Student member	ms. Mai Nguyen Tuyet

The assessment of the Master of Science in Food Science, Technology and Nutrition was accompanied and supported by Mieke Beckers, Quality Assurance Staff Member at the Council of Flemish University Colleges (VLHORA). She is also appointed as a project secretary for this assessment.

1.3.2 TASK DESCRIPTION

Based on the programme's self-evaluation report (SER) and the interviews that were conducted during the assessment visit, the assessment panel will provide the following in its report:

- An evaluation of the subjects and the aspects as defined in the accreditation framework by the NVAO;
- An all-encompassing evaluation of the programme;
- A formulation of recommendations to bring about quality improvement in the programme.

1.3.3 METHOD

The assessment of the 'Master of Science in Food Science, Technology and Nutrition' is conducted in conformity with the procedure that is established in the 'Educational Assessment Visits Guide VLIR|VLHORA'.

The panel's procedure is characterised by four identifiable phases:

- Phase 1 - The establishment of the panel
- Phase 2 - Preparation
- Phase 3 - Visit to the institution of higher education
- Phase 4 - Reporting

Phase 1   The establishment of the panel

On 9 March, 2011, the panel was officially established.

The establishment meeting is a means of getting acquainted with each other, of discussing the assessment process in a detailed manner using the 'Educational Assessment Visits Guide VLIR|VLHORA' and of explaining the creation of a discipline-specific reference framework. In addition to that, practical agreements are made with regard to the assessment visit schedule, the visiting days and the theses and/or internship reports that are to be read by the panel members.

Phase 2   Preparation

The assessment panel formulates its discipline-specific reference framework and provides it to the programme.

Every panel member studies the self-evaluation report and its appendices, as well as the selected Master's theses. The panel members also provide an individual checklist that lists all their questions, their temporary evaluation and their argumentation. The secretary creates a synthesis out of these lists. Following that, the synthesis is thoroughly discussed and provided with arguments. Based on the discussion and the panel members' questionnaires; the secretary finally makes an inventory of the key points and priorities that should

be kept in mind during the interviews and the inspection of materials.

Phase 3   Visit to the higher education institution

VLHORA provides a visit schedule template that can be adjusted to the specific situation of a certain programme if necessary. The visit schedule is included as appendix 3.

During the assessment, the panel interviews a representative group of all the programme's stakeholders, it studies additional information and it visits the institution to be able to assess the students' accommodation and available facilities. The panel uses the checklists' and questionnaires' synthesis for further interviews.

The visit schedule must contain a few consultation meetings that allow the panel members to exchange their findings with each other and to come to mutual, more definitive evaluations.

At the end of the assessment visit, the panel's chairperson gives an oral report on the panel's experiences and findings, without uttering any explicit value judgments with regard to its contents.

Phase 4   Creation of the Assessment Report

Based on the self-evaluation report, the checklists and the motivations, the secretary draws up a draft of the assessment report, in dialogue with the chairperson and the other panel members. This draft assessment report describes the panel's evaluation and the motivation per subject and per aspect. In addition to that, points of attention and possible recommendations for improvement are formulated if found necessary or desirable by the panel members.

The draft assessment report is sent to the study programme for the verification of factual errors and for the formulation of possible remarks with regard to the report's content. The programme's reaction on the report is then discussed by the assessment panel during their final meeting.

1.3.3   FORMING AN OPINION

In the first phase, the panel establishes an evaluation per aspect. Afterwards, the panel establishes an evaluation per subject, based on the evaluation of the aspects that make up that subject.

The subject's evaluation always gives an overview of the aspects' evaluations. In case of a compensation of aspects, the evaluation on subject level is followed by a motivation and the weighting factor that was used by the panel to come to an evaluation on subject level. In all other cases, the motivation of the evaluation on subject level refers to the aspects' argumentation.

With regard to the assessment, the panel keeps into account the individual emphases that a programme wishes to make, the discipline-specific reference framework, and the benchmarking with similar programmes in other higher education institutions.

All evaluations and weightings follow the decision regulations as formulated in the 'Educational Assessment

Visits Guide VLIR|VLHORA'. At aspect level, the panel grants one of the following scores from this quadruple scale: 'unsatisfactory', 'satisfactory', 'good' or 'excellent'. The score 'unsatisfactory' indicates that the programme does not comply with the generic quality demands for that aspect. The score 'satisfactory' implies that the generic quality demands are met. The score 'good' indicates that the quality of the programme stands above the generic quality demands that are related to that aspect. The score 'excellent' implies that the quality of the aspect can be seen both nationally and internationally as an example of best practice. The panel intends to motivate every score given to the evaluated aspects as adequately as possible, taking into account the assessment criteria as formulated in the accreditation framework.

On the basis of the aspect scores, the panel gives a summarising evaluation at theme level. A positive evaluation means that the generic quality demands of a specific theme are met, whereas a negative evaluation indicates that they are not.

Lastly, the panel will make a judgement on the overall quality of the programme at the end of the report.

CHAPTER 2   REFERENCE FRAMEWORK FOR THE ASSESSMENT OF THE MASTER OF SCIENCE IN FOOD SCIENCE, NUTRITION AND TECHNOLOGY

Reference framework

for the assessment of the Erasmus Mundus Master of Science in Food Science, Nutrition and Technology

1.   Input

-   Reference framework of the higher education institution:

Katholieke Hogeschool Sint-Lieven (Belgium), Dublin Institute of Technology (Ireland), Hochschule Anhalt (Germany) and Universidade Católica Portuguesa Porto (Portugal)

-    **International reference frameworks:**

 None

2.   Discipline-specific requirements according to the assessment panel

The assessment panel formulates the following discipline-specific requirements for the graduates from the Master of Science in Food Science, Nutrition and Technology and to this end refers to the Dublin descriptors:

  1. **Knowledge and understanding**
     The Master's graduate:
     - has a good understanding and contemporary knowledge of physical, bio-chemical and microbiological processes in food industry;
     - has a good knowledge and understanding of the contemporary advances with respect to food safety, nutritional aspects of food, ecological aspects of food production and food processing, total quality management, food biotechnology and global food issues;
     - is aware of the complex relations between food production and processing systems and their nutritional, environmental and social impact and is able to integrate them in practice;
     - has an insight in and an overview of areas of current research in other domains adjacent to food science, technology and nutrition;
     - is aware of current developments in science and technology.

2. **Application of knowledge and understanding**

   The Master's graduate:
   - is able to apply his understanding of contemporary issues of physical, bio-chemical, microbiological and analytical nature in food production and processing systems;
   - knows how to integrate his knowledge on contemporary issues in food science, processing and technology in real world applications;
   - has a good understanding of methods and technologies currently applied in food production and processing, according to the chosen specialization courses;
   - is aware of current developments in science and technology and is acquainted with a number of possible areas of advancement within the field;
   - has practical experience in solving food production and processing related problems.

3. **Making judgments**

   The Master's graduate:
   - has developed a research attitude and is capable to contribute to innovative applied research and to development in specific areas;
   - is capable to select and to evaluate an optimal methodology in order to assess and perform control operations of processes of food production, of processing and technology and of food research;
   - takes up his social responsibility as an academic who is active in food production and food processing.

4. **Communication**

   The Master's graduate:
   - is able to report research results and theories adequately – both orally and in writing;
   - develops his reporting and presentation skills.

5. **Learning skills**

   The Master's graduate:
   - is able to critically evaluate recent developments in food science, technology and nutrition;
   - has the ability to keep up with developments in knowledge in food science, nutrition and technology.

PART II

ASSESSMENT REPORT

GENERAL INTRODUCTION

The Master of Science in Food Science, Technology and Nutrition (abbreviated as Sefotech.nut) is an advanced master's programme, organized by a consortium of four European higher education institutions:

- Katholieke Hogeschool Sint Lieven (abbreviated as KAHO), Belgium, as the coordinating institute;
- Dublin Institute for Technology (abbreviated as DIT), Ireland
- Hochschule Anhalt (abbreviated as HA), Germany
- Universidade Catholica Portuguesa – Escola Superior de Biotecnologica (abbreviated as UCP-ESB), Portugal.

The Sefotech.nut programme was conceived as a 90 ECTS-credits programme in 2005. As from 2010, the programme consists of 120 ECTS-credits. The Sefotech.nut course is taught in English, recruiting students around the world. The partners award a joint degree.

The master's programme originates from mutual student and staff exchange between KAHO and DIT, which started in the 1990s. The organisation of several Erasmus Intensive Programmes eventually lead to the Sefotech project in 2000 as an advanced master course on Food Science and Technology. In 2004, the Sefotech consortium members applied for an Erasmus Mundus grant. The acquisition of the grant in 2005 - for a period of five years - implied a widening of the scope of the programme by including a nutrition science module. From then on, the programme was called 'Sefotech.nut'. The Sefotech.nut consortium re-applied in the Erasmus Mundus II-programme in April 2009. The programme now comprises a four semester master course, i.e. the first year of the previous curriculum (six compulsory modules and four optional modules) extended by a third semester, the 'professional competence module', and the Master's thesis project in the fourth and last semester. The consortium basis of four EU universities has been enlarged and reinforced by the intake of five new associated partner institutes in the USA, Mexico, Russia, India and China.

The division of tasks between the different institutes was defined as follows:

- The six compulsory modules are both taught at DIT and KAHO Gent.
- The optional modules are offered by the partner with the strongest research and expertise in this field. HA and UCP-ESB offer three optional modules each and DIT and KAHO each offer two optional modules.
- The professional competence semester can be followed at each of the four partner institutes (depending on the subject area) or at one of the associated partner institutes. The same system is used for the master's thesis semester.

As far as finances are concerned, the Sefotech.nut Master's programme is financially supported by the European Commission but essentially has to be self-sustaining. It has operated under the Erasmus Mundus I scheme in the years 2005-2009 receiving a lump sum of 15,000 euro for every course edition for the entire consortium. This amount was equally distributed between the partners. In the second phase of the Erasmus Mundus programme (EM II), which started in the academic year 2010-2011, the lump sum increased to 30,000 euro per edition for five consecutive years for the entire consortium. This amount is managed entirely by the coordinating institute. These funds cover basic organisational costs of the programme, e.g. cost of coordination, travel costs, etc.

Apart from the direct consortium funding from the European Commission, the programme also receives a number of scholarships for European students and scholars as well as for non-EU students and scholars. This scholarship is designed to assist highly qualified individuals to participate in the European MSc course either as students or scholars. The annually decreasing number of scholarships varies per year starting from 26 non-EU students and three non-EU scholars in 2006 under the EM I framework to eleven non-EU students, seven European students, four non-EU scholars and two European scholars under the Erasmus Mundus II framework, which started in 2010 and is currently running, but this number will be further reduced along the number of years the programme receives EM support. Additionally, in 2010 the consortium obtained in total six scholarships for scholars (scientists), which financially translated itself in the allotment of 1,200 euros per week with a maximum stay of three months each.

SUBJECT 1   OBJECTIVES

According to the self-evaluation report, the aim of the programme is to foster and develop knowledge and awareness of scientific trends and health issues in food science, technology and nutrition in a global context. The Sefotech.nut programme targets at providing graduates with the competences of an academic professional. More specifically, the goal of the Sefotech.nut programme is to train professionals that come from a wide a large variety of backgrounds. The course is meant for at graduates intending to develop their careers in food science, technology and nutrition related to food production, health and allied areas.

The self-evaluation report mentions five general competences that the Sefotech.nut programme students must develop. Graduates should eventually master:

1. General principles of the discipline and expertise in one or more scientific sub-disciplines at an advanced academic level. This includes the general, general scientific and displicine-specific competences as they are required in the Higher Education Act. The general competences cover the ability of students to handle complex problems, to think and act scientifically, to critically reflect and translate these reflections to the development of more appropriate solutions, to communicate their own research and solutions of problems with specialists as well as non-specialists, and to make

judgements in an uncertain context. The general academic-oriented competences at an advanced level deal with the knowledge of methods and techniques in research, the ability to design research projects and to apply paradigms, the capacity for creative and innovative thinking and for working together in a multidisciplinary environment. Furthermore, the programme also aims to instill the necessary competences to conduct scientific research at the level of a starting researcher and for the independent application of scientific knowledge and technology;

2. A scientific research-based approach to the field of study;
3. Problem-solving thinking and the necessary skills and attitudes for scientific writing of reports and publications;
4. Social skills and attitudes, such as team work and communication;
5. Intellectual competences – more specifically, students should be aware of the challenges and new developments in food production and processing, and learn to make decisions in uncertain conditions.

On top of these general competences, the programme also defined overall and specific learning outcomes for the course. The overall learning outcomes of the Sefotech.nut master course and the expected level as to which students should develop competences are:

1. State of the art knowledge on food safety, nutrition aspects of foods, ecological aspects of food production and food processing, total quality management, food biotechnology and global food issues;
2. The ability to critically evaluate recent developments in food science, technology and nutrition;
3. A critical appreciation of evolving issues and future global directions in general issues and in food production and processing;
4. An enquiring approach and the capability to contribute to innovative research and development in selected modules;
5. The ability to communicate effectively and defend their work in written, oral and poster format; good reporting and presentation skills;
6. The capacity to select and to evaluate an optimal methodology for assessing and for performing control in processes of food production, processing and technology and in food research;
7. The required professional competencies, demonstrating that they are ready to take their social responsibility as an academic active in food production and food processing.

In addition to the general aims, the programme also aims to cover specific goals and learning outcomes. Upon completion of the programme, students must:

1. have a good understanding of basic principles of physical, bio-chemical, microbiological and analytical nature and of how to apply these in food production and processing systems;
2. have a good understanding of basic principles of technology and of how to apply them in food production and processing systems;
3. have an insight in the complex relation between food production and processing systems and of their nutritional, environmental and social impact;
4. have a good understanding of methods and technologies currently applied in food production and processing, according to the chosen specialization courses. Students will be reasonably aware of current developments in science and technology, have practical experience in solving food production and processing related problems and will be acquainted with a number of possible areas of advancement within the field.
5. have insight in and an overview of areas of current research in other domains adjacent to food science, technology and nutrition.

The learning outcomes are further specified in a list of competences for each specific module of the course.

The panel finds that the objectives stated above, which are based on the Dublin descriptors, are in accordance with the panel's own reference framework and with the Flemish Higher Education Act. All competences are formulated on master's level and represent a good mix of academic and professional skills. The panel appreciates that the programme successfully combines an academic and professional orientation. More precisely, it values that the programme aims at high level technical competences that allow students to assess problems and solutions for a range of issues in the food industry in a scientifically sound way. This is clearly a strength of this programme. However, the panel recommends phrasing the objectives in a more concise way. The self-evaluation report contains an elaborate description of the goals and intended learning outcomes of the programme. The panel, however, believes that the programme could benefit from a more focused and succinct list of competences that are aimed to. This would allow a more transparent evaluation of students' achievement of the learning outcomes. Moreover, the panel believes that the interrelationship between the various sets of competences (i.e. the general competences, the overall and the specific learning outcomes cited above) needs to be clarified. The current formulation does not demonstrate any synergies and complementarities of competences across modules.

The Erasmus Mundus Master's programme Sefotech.nut was set up amidst the challenge of coupling available research and academic education expertise in several areas of food production and processing. The different consortium institutes joined efforts and expertise in order to cover the full chain from food production up to consumption. During their training, students travel between the different campuses of the participating institutes. Since each consortium partner contributes to the modules of the programme in which they have the strongest expertise, students have access to high quality education. According to the panel, this could be appointed as one of the key strengths of the Sefotech.nut programme. The panel however considers it advisable for the programme to build even more on the available teaching and research assets of the different partners than it is doing today. One step in this direction could be to organise the compulsory modules on one campus only, namely on the one with the strongest, available research and teaching expertise in a specific area is located. In the panel's opinion, the programme would benefit from such a decision in the following ways:
- a better reliance on each partner's key teaching and research strengths;
- a beneficial effect on the cohesion of the student group because all students in the programme would be brought together in one geographical place for the compulsory modules;
- a better incorporation within the regular activities of the different partner universities;
- the sustainability and efficiency in providing the programme.

At the time of the site visit, the programme was already investigating the possibility to leave the path of parallel teaching on two campuses.

The programme's aims are mainly communicated to the students, the staff and the community through the programme's website (www.sefotechnut.org). It is the main tool used in the communication of the programme's structure, aims, prerequisites, curriculum and modules, as well as in the promotion of the course.

With regard to improvements to be made to the study programme, the assessment panel raises the following suggestions for change:
- The panel suggests to the formulation of the programme's objectives in more concise and focussed terms.
- The interrelationship between the various sets of competences should be clarified.
- The panel advises the programme to build even more on the available teaching and research assets of the different partners than is the case today.

In the self-evaluation report, the programme states that its comprehensive view with regard to food science can be seen as its clear scope and ambition. The broad coverage of food production and food processing related subjects, together with a wide horizontal coverage of subjects from environmental science over to food (bio)technology to health and social aspects in nutrition science, all fitting in a sustainability perspective, is original and meets the expectations of industry. The programme's broad scope implies that graduates can develop careers in a wide variety of roles dealing with food production and processing and with all adjacent services. The panel is of the opinion that the programme is clearly oriented towards a real demand from the labour market for international professionals in food science, technology and nutrition. All consortium partners have access to strong institutional networks with the labour market, allowing them to recognise the field-specific requirements.

In the self-evaluation report, comparisons with several other related programmes in food science in the European higher education area are made. This comparison learns that few advanced and postgraduate programmes exist in the field of applied food science. Although the panel is convinced that the programme has investigated related master's programmes in Europe, it advises the programme to take this comparison a step further (in a descriptive manner) by performing a real benchmarking exercise, which allows a focussed description of the programme's 'unique selling proposition'. More precisely, the panel is convinced that the international character of the programme contributes significantly to its inherent quality. The international student recruitment and the requirement for students to enrol for at least 30 ECTS outside of their host country (which is either Ireland or Belgium), helps students to appreciate and understand living in a multi-cultural environment and to adjust continuously to new environments and surroundings. It is the panel's conviction that a greater emphasis on these inherent quality characteristics - international student mobility between European higher education institutes with strong expertise in the various aspects of food science and technology - can help to emphasize the uniqueness of this master's programme in higher education.

With regard to improvements to be made to the study programme, the assessment panel raises the following suggestions for change:
- The panel advises the programme to carry out a benchmarking exercise and to specify the programme's 'unique selling proposition' in a more effective manner.

General conclusion related to theme 1: Objectives

The aspect 'level and orientation' is evaluated as satisfactory and that of 'domain-specific requirements' as good by the panel; hence the theme Objectives is assessed positively.

SUBJECT 2   CURRICULUM

ASPECT 2.1. RELATIONSHIP BETWEEN AIMS & OBJECTIVES AND CONTENTS OF THE CURRICULUM

Assessment criteria:
- The curriculum is a satisfactory expression of the study programme's final qualifications in terms of level, orientation and discipline-specific requirements;
- The final qualifications are translated into learning goals of (components of) the curriculum in an effective manner;
- The curriculum content offers students the opportunity to achieve the formulated final qualifications.

The panel assesses the aspect 'Correspondence between the objectives and the contents of the programme' as satisfactory.

The programme is organized according to a modular format. Students take six compulsory core modules, each tackling core issues of food science, technology and nutrition, i.e. food safety, ecological aspects of food production and processing, nutritional aspects of food, total quality management, food biotechnology and global food issues. The six compulsory core modules are offered by two partner institutes (DIT and KAHO). Next to these six compulsory modules, students select four modules from a list of eight. The optional modules allow students to explore and examine particular food products, food groups, and production sectors (i.e. malt and beer production, wine & spirits, meat and meat products, diary science and technology, fats and oils, cereal and cereal products, fruit and vegetables and public health nutrition). Optional modules are offered by the partners with the highest expertise in that particular field.

Each of the taught core and optional modules is valued at 6 ECTS credits. Both the core and optional modules prepare the students for their specialization in the professional competence module (in the third semester of the programme) and the Master's thesis (in the fourth and final semester). Compulsory course modules are (partly) meant for remediating the initial competences' diversity in the student population. The optional course modules, on the contrary, aim at a deepening of knowledge and skills in specific food production and processing areas.

Generally, the panel finds that the formulated objectives are adequately translated in the design of the master's programme. The curriculum design therefore allows students to attain the formulated qualifications. A competence matrix displaying the relationship between expected learning outcomes on the different modules has also been drawn up by the programme. The panel, however, thinks that this matrix should have a more discriminating character. The matrix shown to the panel covers all expected learning outcomes, but maps all learning outcomes on almost all modules. The panel therefore recommends working further on a more discriminatory matrix, which also more clearly displays the relationship between the general objectives of the programme as a whole on the one hand, and the list of competences for each specific module of the course on the other hand. As was pointed out above (under aspect 1.1 – Level and orientation), the programme elaborately describes the goals and intended learning outcomes. However, the panel feels that the link between the overall programme objectives and the module's objectives should be clarified according to the panel. More precisely, it should be demonstrated more clearly in what way the module objectives are a translation or specification of the general objectives.

The panel appreciates highly the interdisciplinary elements in the curriculum. The modules clearly cover scientific trends, research and policy debates of a wide range of issues related to food and nutrition. The course

highlights, amongst others, issues such as global food issues, international trends and food problems, food safety, environmental issues and public health. A suggestion for improvement could be to more clearly demonstrate how the envisaged integration of the course's three aspects – food science, technology and nutrition – is accomplished in the curriculum. The panel expected that this integration would be a compulsory part of the professional competence semester and/or the Master's thesis. This is, however, not explicitly the case. It therefore remains unclear to the panel how students should accomplish this in practice at the end of the course.

The international dimension of the Sefotech.nut course is self-evident, because of the international consortium organizing the programme, the international student recruitment and in-built student mobility, the engagement of visiting scholars, the use international course materials and English as a working language, and the consortium partner's participation in international research projects.

The programme management board is responsible for the development, the innovation and the improvement of the curriculum. The programme management board is comprised of the four partner institutes' programme coordinators, at least one other senior staff member from each partner institute and the programme administrators from the coordinating institute KAHO. A general curriculum review is performed every three years. The latest curriculum review – as part of the three year cycle - took place in September 2008. All ten modules of the course were scanned and subsequently updated with new literature. Next to this three year cycle, revisions on a shorter time line remain possible. On the one hand, local management boards are responsible for an annual update of the modules they deliver. On the other hand, the management board that is responsible for academic and quality matters holds a meeting at least twice per academic year. This allows a regular follow-up, next to individual lecturer's commitment to make use of updated course materials.

With regard to improvements to be made to the study programme, the assessment panel raises the following suggestions for change:
- The panel advises that more thought is given to a consistent crystallization of the general objectives with the aim to translate these into more concrete objectives in the curriculum components (i.e. modules).
- The panel recommends further clarification of the link between the overall programme objectives and the module objectives.

ASPECT 2.2. REQUIREMENTS WITH REGARD TO THE PROFESSIONAL AND ACADEMIC ORIENTATION

Assessment criteria:
- Students develop knowledge through the interweaving of education and academic research (including research in the arts) within relevant disciplines;
- The curriculum is in line with the developments in the relevant discipline or disciplines through demonstrable links with current academic theories;
- The curriculum guarantees the development of skills in academic research and/or the development and practice of the arts;
- (With regard to applicable study programmes,) the curriculum has demonstrable links to current practice in the relevant vocational fields.

The panel assesses the 'Requirements for professional and academic orientation' as good.

As stated under Theme 1 - Objectives, the programme successfully combines an academic and professional orientation. This successful reconciliation is visible in the curriculum as well. The alumni with whom the panel discussed the programme also testified that they feel confident concerning their problem analysis and problem solving skills.

Various aspects contribute to the programme's academic orientation. First of all, all consortium partners are experienced in applied research-based education. They all have strong applied research groups in the field of food science, technology and nutrition. Lecturers are active researchers and can therefore refer to recent scientific and technological research and they can involve the outcome of their own research activities in their teaching. Secondly, several course units focus on applied research skills and attitudes. Research competences are particularly of crucial importance in the Master's thesis project, which most strongly focuses on developing research skills. The panel, however, believes that a more explicit consideration of research methodology in the compulsory part of the course would be beneficial for students.

Moreover, the programme is also designed to prepare students to combine theoretical knowledge with skills and attitudes and to apply this knowledge in real situations. This is particularly the case for the optional modules, in which there is usually a direct link to industrial applications. On a regular basis, invited lecturers contribute to the delivery of the modules, which increases the exposure of students to the industrial professional environment and positively contributes to the employability of students. Site visits to companies in the food sector are also part of the curriculum. The panel therefore concludes that the programme is adequately oriented towards the relevant practice and to the food industry.

After having consulted the alumni, the panel recommends the inclusion of more practical work in the compulsory curriculum. The panel believes students need this, as most of them have to carry out practical work for their Master's thesis. The alumni, with whom the panel spoke, testified that some practical work helped them performing that in their thesis, but for the better part they mainly had to rely on experience that they had acquired during their bachelor's education and/or on the willingness of their thesis supervisor to explain the relevant lab tests. Since there can be quite a lot of time between student's previous education and them carrying out the Master's thesis, the panel believes that it is important to regularly train the student's practical laboratory skills.

As mentioned above, the programme management recently included a professional competence semester in the curriculum. Students who enrolled in the academic year 2010-2011, will perform the professional competence module in the first semester of the academic year 2011-2012. Hence, the results of this new module could not be evaluated during this educational assessment. The professional competence semester is intended to allow for specialization in various fields: fermentation technology, meat technology, nutrition and public health, wine making and new trends in food processing. It is assumed and advised by the programme that the selected specialization is in line with previously followed optional courses and with the Master's thesis topic. The professional competence semester explicitly aims to enhance education in industry related R&D and technology. According to the panel, this reinforces the programme's professional orientation. The professional competence semester includes an internship, either in a company or in a research laboratory. In any case, the internship has to take place in a company, industrial laboratory, service or research institute that one of the consortium partners has a relationship with. The panel confirms that clear learning outcomes of the professional competence module have been determined. Each of the consortium partners has also clearly developed strong links with professional bodies. This is supported by numerous examples given in the self-evaluation report. It is the local coordinator's task (on each of the four campuses) to contact relevant companies, laboratories or approved workplaces where the desired subject of the student can be undertaken. A local supervisor at the hosting company or institute is responsible for the supervision of the student. At the end of his/her project, the student hands in a 'portfolio of evidence', describing the main characteristics of the

placement (organisation structure, role in the sector, duties and responsibilities) and the student's reflection on the key learning process. The programme coordinators expect the newly established partnership with five institutions outside of Europe to enhance the opportunities for the professional competence semester.

In summary, the panel finds the professional competence semester a good opportunity to enhance the professional orientation of the programme, but it also advises that further clarification of its position is needed, particularly vis-à-vis the Master's thesis. During the interviews with the staff and management board of the programme, the panel heard that there is a possibility for students of doing the professional competence module and the Master's thesis in the same company. The panel believes that further reflection on this aspect is necessary, in other words, whether such a combination is desirable or not, and under what conditions it can be successful. Since the professional competence module was introduced only recently, and no students had performed it at the time of the site visit, the panel recommends further reflection on this interrelationship at a later point in time.

With regard to improvements to be made to the study programme, the assessment panel raises the following suggestions for change:

- The panel advises that more explicit attention is given to practical work and applied research skills in the curriculum in view of the necessary skills for students during their Master's thesis.
- The panel recommends to further clarification of the position of the professional competence semester in relationship to the Master's thesis.

ASPECT 2.3. COHERENCE OF THE PROGRAMME

Assessment criteria:
Students follow a curriculum that is cohesive in terms of content.

The panel assesses the 'Consistency of the programme' as satisfactory

The panel observed that the programme is built according to a clear sequence of modules. This sequence is rather strict, since successful completion of the six compulsory modules and four optional modules is mandatory prior to the commencement of the professional competence module and the Master's thesis. Since one of the objectives of the compulsory modules is to provide students with an equal basis of knowledge and skills (due to their various backgrounds), they are all planned during the first year. The first four compulsory modules are offered during the first semester. Students are distributed more or less equally over the campuses in Dublin or Gent, if possible taking their preference into account. In the second semester, students complete four optional modules (out of an offer of seven modules) at any of the three partner institutes. Then, during each three-week period, two optional modules are offered at the same time, but at different partner institutes, allowing students to choose and to plan their mobility between the campuses. After that set of optional modules, the last two compulsory modules are offered in the host country where the students have started the course, i.e. Dublin or Gent. Afterwards, the students can complete their optional course module scheme by the offer of three optional modules at HA. Although the programme management believes that the coherence of the programme could benefit from one set of compulsory modules followed by all optional modules, this is apparently - according to the staff of the concerned institutes - not possible due to a different planning of semesters in different partner institutes.

There are no requirements regarding the order that the optional modules are taken in. As stated above, some

modules are organized twice a year, which enables students to choose when and where they would like to complete the module. In other words, the programme allows students to organize their own study mobility, both in terms of space and time. The panel appreciates that students are strongly advised to select a coherent package of optional modules, the professional competence module and the Master's thesis. In other words, students are encouraged to choose to a domain of interest and to specialise in this topic. The programme provides support for students to help them make these choices: students can ask for individual advice from the programme manager and all optional modules are integrally presented to the students at the time when they need to select the topics they want to pursue.

The programme structure obliges students to carry out a mandatory stay in at least two different higher education institutions, since each student must take at least 30 ECTS outside of the host country to fill in the compulsory modules. In practice, however, most students visit three campuses.

Although it was clear to the panel that Gent and Dublin play a leading role, the panel sees ample evidence of a good integration of the four consortium partners regarding the organization of the course, in terms of governance structures, degrees awarded, ECTS mechanisms, common standards for application and selection for admission, common tuition fees and scholarship policy. Next to the joint programme management board (mentioned in aspect 2.1), each partner institute also provides a local management board and a local course coordinator. They are responsible for the day to day management of the programme in their respective institutes. Gent

The panel also believes that the programme is sufficiently coherent in terms of the curriculum content. Whereas the compulsory course modules are (partly) meant for remediating the initial competences' diversity in the student population, the optional course modules aim at a deepening of the knowledge and the skills in specific food production and processing areas. However, the panel would like to put forward two suggestions for the further improvement of the programme's coherence. On the one hand, the panel believes that more efforts can be made to make good use of the knowledge and skills taught in the compulsory modules in the optional/specialized modules. Based on the course materials, it wasn't entirely clear to the panel in what way the competences aimed for in the optional modules build on the knowledge and skills acquired in the compulsory modules. On the other hand, based on the interviews, the panel feels a need for intensified communication between the teaching staff of the different institutions. More concretely, the panel suggests exchanging course materials and exams between the teaching staff, particularly in case of modules taught in two different versions at different locations . Mutual visits can also improve the contacts between the teaching staff that is responsible for an equivalent module organised at two campuses. The panel believes such measures could improve ownership of the teaching process in the whole programme. Another, more radical measure, is to fully integrate the modules which are currently organised on two campuses.

With regard to improvements to be made to the study programme, the assessment panel raises the following suggestions for change:
- The panel advises improvement of the communication between the teaching staff of the programme particularly in case of modules taught in two different versions at different locations.
- The panel recommends reinforcing and making better use of the knowledge and skills taught in the compulsory modules in the optional/specialized modules.

Assessment criteria:
The study programme fulfils the formal requirements with regard to the size of the curriculum:
- bachelor's: at least 180 study credits,
- bachelor's after bachelor's: at least 60 study credits,
- master's: at least 60 study credits,
- master's after master's: at least 60 study credits.

The master in Food Science, Technology and Nutrition consists of 120 ECTS-credits. The programme thus complies with the formal requirements regarding the 'Size of the programme', as described in the Flemish Higher Education Act.

ASPECT 2.5. STUDENT WORKLOAD

Assessment criteria:
- The actual study time is evaluated by the programme and it is in harmony with the standards that are established by decree.
- The curriculum is suitable for study. Factors that relate to the curriculum and that obstruct the study progress have been tackled as much as possible.

The panel assesses the 'Student workload' of the programme as satisfactory.

The entire course corresponds to a total study load of 3,000 hours. All the course modules, which are organised in a three weeks' time period, have been quantified in student workload hours. A fixed number of credits was allocated to each module. Moreover, for every module, the self-evaluation report gives an overview of the workload for lectures, tutorials, workshops, seminars, site visits and student-directed learning (in hours).

Experience informed the programme coordinators that the real workload varies and depends on the previous knowledge of the student, his motivation and persistence. The students with whom the panel talked, testified that the programme is rather demanding. They experience that three weeks for each module requires a quick understanding of all the material. The panel understands this and considers that four weeks rather than three might give students somewhat more time to 'digest' the material.

Formal workload measurements for the Sefotech.nut course are not available. Although the qualitative evaluation and perception of the workload imposed by specific learning activities is partly measured. At the end of each module, students fill out a questionnaire in which the teaching time is one of the items to be assessed. Students can indicate in this questionnaire whether the teaching time corresponded to the statement "too many hours", "an ideal number of hours" or "too limited number of hours". There are, however, plans to perform a study time measurement for students who have enrolled in the 120 ECTS programme (which includes the professional competence semester from the academic year 2010-2011 onwards). The panel recommends carrying out such a study time measurement, which might lead to an adjustment of the study time for certain modules.

With regard to improvements to be made to the study programme, the assessment panel raises the following suggestions for change:

- The panel recommends performing a study time measurement, which might lead to an adjustment of the study time for certain modules.

Assessment criteria:
- The didactic concept is in line with the objectives;
- The work forms are aligned with the didactic concept.

The panel assesses the 'Coherence of structure and contents' as satisfactory

The panel observed that a large variety of teaching methods is used, ranging from lectures (communication of knowledge by interactive teaching), tutorials (with a focus on a specific subject and associated exercises), workshops (brief, intensive courses), practical courses (laboratory exercises) and seminars to site visits and student-directed learning. Interactive teaching is possible thanks to the limited number of students, which allows for discussion and Q&A during lectures.

In the optional modules, students have to perform laboratory exercises, either individually or in small groups. They subsequently have to discuss the results and often they also submit a written report. Examples are exercises on production processes, product or ingredient characterization, etc. As already mentioned under aspect 2.2, the panel believes that more practical work would be useful.

The type of course material varies according to the module. Many lecturers have designed specific course materials for Sefotech.nut. During the site visit, the panel observed that the study material is generally of good quality. The materials offered cover the essential issues. For some courses however, there are only PowerPoint presentations available for the students.

The panel believes that the opportunities available *via* the electronic learning platform are not fully exploited. The electronic platform that could be consulted during the site visit was only used for distributing messages and some study material to students. Particularly in the context of an international programme and the inclusion of a large number of visiting teachers such as in Sefotech.nut, the panel recommends investigation of how electronic learning environments and e-learning can be used more effectively. Similar platforms are currently used in all the different institutes.

Based on the reading of the self-evaluation report and the interviews during the site visit, the panel has the impression that more effort can be made to outline a common didactic concept for the programme. The panel did observe some common, underlying principles in the educational concept of the programme, such as the importance attached to student-directed learning. More specifically, this means that students are responsible for their own learning process, guided by lecturers if necessary. The student's autonomy is expected to increase as he proceeds in the programme with regard to this principle. Also the modular approach and the importance of interactive teaching are implicit educational principles of the programme. In order to improve the ownership of the teaching process (cf. aspect 2.3 – Coherence), the panel believes that the programme could benefit from a more explicit and common didactic concept in accordance with the programme's objectives.

With regard to improvements to be made to the study programme, the assessment panel raises the following suggestions for change:

- The panel suggests making the underlying didactic concept of the course more explicit and consistent across the participating institutions, in order to improve the ownership of the teaching process.
- The opportunities of the electronic learning environments and e-learning can be exploited more effectively.

Assessment criteria:
The assessment, tests and examinations satisfactorily verify whether the students have realised the learning targets of (components of) the curriculum in a way that is insightful for students.

The panel assesses the aspect 'Learning assessment' as satisfactory.

The self-evaluation report gives an overview of the examination formats used. Evaluation mainly takes place through written or oral examinations and/or assignments (such as case studies, essays, written scientific reports, presentations, laboratory work…). The exams take place once the module is finished, i.e. after three weeks. During the professional competence semester, students are assessed by the placement supervisor based on their work during the internship. A local institute-based supervisor (specialist in the area of the internship) and the local programme coordinator assess also the student's performance after the internship on the basis of a 'Portfolio of Evidence'. This portfolio describes the main characteristics of the placement (organisation structure, role in the sector, duties and responsibilities) and the student's reflection on the key learning process. The evaluation of the Master's thesis is explained under aspect 2.8 – Master's thesis.

In general, the rules and regulations of the partner institute where the module is taken are applicable. In other words, in terms of performance assessment, each partner institute applies and refers to its own and local marking system. The assessment results of all students taking a certain module, is reviewed by the local examination board according to local examination rules and quality assurance procedures. There are, nevertheless, also a number of rules which are valid specifically for the Sefotech.nut programme, of which the most important are:
- Decisions on the overall performance assessment are made by the joint examination board, with delegates of all consortium partners. In fact, it is the programme management board which functions as a joint examination board for the programme.
- Students can retake the exam of a certain module only once. The second exam chance can only be granted based on well-motivated grounds.
- A mark of at least 50% is required to pass the module. There is no compensation possible between the modules.
- The master degree is only awarded under the condition that all modules, including the professional competence module and the Master's thesis, have been completed successfully.

The ECTS grading scale (A to F) is used for all evaluation results of modules. In order to assure the comparability of the students' marks, obtained from different partner institutes, a calculation system for converting local grades to the common ECTS grading scale has been developed. Students' performance is evaluated by awarding a local grade, which later on is converted to an ECTS grade. Only the ECTS grade is taken into account for calculating the average grade for the whole programme. In order to ensure transparency, the transcript of records mentioned the ECTS grades as well as the local grades. A key for converting local grades from each partner institute to the equivalent in the ECTS system is added to the transcript of records. The students are also guided into the terminology and the use of ECTS, because they are usually not familiar with it.

The above described procedures are, according to panel, sufficiently clear and robust. The consortium partners have clear agreements on how to handle assessment and testing in the programme. During the site visit, the panel noticed that, however, examinations are not necessarily taken in the same way in different institutions where the same modules are taught. The panel came to the conclusion that the discussion about assessment and testing between the institutions could be more intense, with a focus on the harmonisation of assessment methods where possible and practically feasible. It believes that the programme could enhance the quality of

assessment procedures by exchanging examinations and discussing concrete evaluation criteria. In that way, modules which are taught twice, can evaluate students in a more consistent way. The panel believes this is more important for the core modules, which are taught in both Dublin and Gent, than for the optional modules offered at two locations.

Student questionnaires show high level of satisfaction with the elements of the assessment process (*eg* examination formats, schedule…). At the start of each module, students are informed about the manner in which they will be evaluated. Each member of the teaching staff is expected to communicate the examination requirements to students in detail. Also in the interviews during the site visit, students say they know what type of exam to expect, in all four higher education institutions. The panel believes, however, that more attention should be paid to providing students feedback on their performance. Until now, feedback on exam results is only given on the initiative of the student by contacting the lecturer directly. During the interviews, students confirmed that professors on all four campuses are willing to give individual feedback if it is requested. In order to increase each student's learning experience, the panel feels that feedback should have have a more prominent and explicit role. Students and alumni are also in favour of increased transparency of the evaluation criteria. Although students generally understand the formats of exams they will have, they are much less aware of the criteria used to assess them. The panel confirms this and considers it as an area for improvement. This is particularly important because students are often marked through papers. For the panel, the assessment of such papers and assignments was not transparent in all cases.

With regard to improvements to be made to the study programme, the assessment panel raises the following suggestions for change:
- The panel suggests improvement of feedback to students on exam results and to increase the transparency of evaluation criteria, in particular for the paper assessments.
- The panel recommends an intensification of the communication between the four consortium partners concerning assessment and testing, e.g. by exchanging examinations and evaluation criteria.

ASPECT 2.8. MASTER'S THESIS

Assessment criteria
- The master's study programme is concluded with a master's thesis in which the student shows analytical capacity or an independent problem-solving capacity at academic level, or the capacity of artistic creation. The project reflects the student's general critical-reflecting attitude or research orientation;
- The master's thesis accounts for no less than one-fifth of the total number of study credits, with a minimum of 15 study credits and a maximum of 30 study credits.

The panel assesses the aspect 'Master's thesis' as satisfactory.

The master's thesis has a weighting of 30 ECTS-credits, which complies with the existing Flemish regulations. The Master's thesis is the module in which all target competences should be acquired in an integrated way. Its goal is to acquire a thorough understanding of the principles and practice of science and to provide the student with an open and critical mindset and a confident approach to scientific problem solving. Detailed learning outcomes for the Master's thesis are mentioned indicated in the self-evaluation report.

Students are strongly advised to select a coherent package of optional modules, a professional competence module and a Master's thesis. In other words, students are encouraged to choose to a domain of interest and to specialise in this domain. During the first master year of the masters course, students have to select a research area of interest and select optional modules and the professional competence module accordingly. It

can be carried out at a partner institute or at an approved workplace (i.e. industrial company, service organisation or research group). In the latter case, there is also direct supervision of the student by the scientific staff of one of the consortium partner institutions.

The preparation, supervision and evaluation of the Master's thesis are similar in all consortium institutes.

As far as preparation is concerned, students are required to hand in their thesis topic proposal to the local course coordinator by the end of their first year. In many cases, students can contact directly the relevant academic staff member in their chosen research field of their preference. The local course coordinator's task is to assist in the selection and development of the thesis topic. In some cases, adaptations of a topic are necessary from a practical point of view or from the viewpoint of available resources. Depending on the hosting partner institute, the local course coordinator will liaise with the external project supervisor and will, where appropriate, make site visits to meet the student when required. Daily supervision of the student can be carried out by PhD students, post-docs or senior scientists who guide the student on a daily basis. Although the student is expected to work relatively autonomously on his Master's thesis, the daily supervisor is important to guide the student in terms of setting the appropriate goals, their realisation, how to set up experiments and to draw conclusions from them. The panel considers that the Master's thesis supervision is a strong point of the programme. During the interviews, the alumni expressed their satisfaction concerning the guidance that they received while working on their Master's thesis.

Each written thesis report should contain five parts: introduction (i.e. relevant background of the study), materials & methods (i.e. description of reagents, equipment and procedures), results, discussion (i.e. overall interpretation of the data) and conclusion (i.e. summary of the main findings). In addition to the final project report, students are expected to write a potentially publishable article, presenting a summary of the most important and useful findings.

At the end of their projects (and thus of the whole master's programme), students are required to defend their thesis. During the defence, which can be attended by anybody interested, students present the poster of their project to the examination commission. The defence and final evaluation of the Master's thesis always takes place at the host institute, according to the local rules of the higher education institution where the project was undertaken. It is the local coordinator's task to assign two reviewers, of which at least one is external to the research group where the work was performed. These two reviewers, together with the thesis supervisor, form the evaluation commission. The purpose of the defence is to determine whether the student has been able to carry out autonomous research. The final grade is based on a weighted average of the individual scores of the members of the thesis evaluation commission.

The panel had the opportunity to read fifteen Master's theses. The panel is of the opinion that the theses are of satisfactory to good quality and adequately reflect students' independent problem-solving competences at an academic level. The master's theses also demonstrate the critical research attitude of the students. The panel does, however, believe that there is some room for improvement as far as assessment of the Master's theses is concerned. The different consortium partners seem to determine the grading of Master's theses rather differently. While some partners use a very detailed scheme of elements to be graded by examiners, other institutions use a more concise scheme. Also the weighting attached to different components (written report, presentation etc.) varies. What is common to all four, however, is the fact that there are no real evaluation criteria, indicating a reference scale. The panel believes that the evaluation of the Master's theses could be significantly improved if a common evaluation system across the organizing institutions is established. In the current situation, the different partners carry out a different kind of evaluation and then recalculate the total score to a %-value and an ECTS letter code. According to the panel, this procedure leads to normalization, which doesn't sufficiently assure that a thesis of poor or high quality is rewarded with an equally low or high score in the different institutions. The panel believes a common evaluation grid would therefore be more appropriate. While developing such a common grid, it would be advisable to establish a clearer relationship

between the objectives of the master's programme as a whole and the evaluation criteria of the master's thesis. In that way, it would be more obvious how the Master's thesis is the module *par excellence* for the student to prove that he has attained the programme's objectives. In case a common evaluation is not to be introduced, the consortium partners' mutual awareness of the Master's thesis grading could improve if a representative of another institution would always be part of the evaluation commission.

With regard to improvements to be made to the study programme, the assessment panel raises the following suggestions for change:
- The panel recommends developing a common evaluation system across the organising institutions, which clearly indicates the required level of achievement and the relationship with the overall programme objectives.

Aspect 2.9. Admission requirements

Assessment criteria:
- The form and content of the curriculum are aligned with the qualifications of the student intake:
- Bachelor's: certificate of secondary education; certificate of short-type higher education with full syllabus; certificate of higher education for social education or a certificate or attestation recognised as equivalent in or by virtue of a law, Decree, European directive or other international agreement/conditions established by the board of the institution for persons that do not fulfil the above conditions;
- Bachelor's after bachelor's: bachelor's degree with a qualification or qualifications established by the board of the institution, complemented with any suitability or competence study or a preparatory curriculum;
- Master's: bachelor's degree with a qualification or qualifications established by the board of the institution, complemented with any individualised study programme, preparatory curriculum or transition curriculum;
- Master's after master's: Master's programme with a qualification or qualifications established by the board of the institution, complemented with any suitability or competence study or a preparatory curriculum

The panel assesses the aspect 'Admission requirements' as good

The coordinating institute, KaHo Sint-Lieven, is responsible for organizing an annual yearly admission board in January. This board consists of the four programme coordinators. The board's members evaluate all applications before the meeting takes place, on the basis of the documents that applicants have submitted online. In order to maintain an overview of the high (and every year increasing) number of applications, the programme coordinators include every applicant's key information in an overview table. Also, a preliminary ranking is prepared before the admission board takes place in order to facilitate the process.

The panel can conclude that the programme uses clearly outlined and transparent admission criteria, which include:
- The world university ranking from which the student obtained his/her previous degree (maximum 10 points): in order to assure a good judgment of institutes in the developing countries, two sources of information (Times Higher Education and Webometrics) are combined;
- The student's educational background (maximum 10 points): Recruitment is aimed at academically trained people who collected 240 ECTS credits (4 years' academic bachelor curricula or a 180 ECTS bachelor plus minimum master. Preferably, students have a background covering all three important aspects of the course: food science, technology and nutrition;
- The grade of qualification obtained – honours degree (maximum 5 points): at least a grade C qualification is required;

- The student's relevant work experience (maximum 5 points): the number of years of relevant work experience are taken into account;
- Additional training/courses/workshops - which are not a part of the regular study programme (maximum 4 points);
- Participation in conferences and/or publishing of papers/articles in peer reviewed scientific journals (maximum 4 points);
- References/recommendation of the student by a known and trusted contact (maximum 2 points).

In the self-evaluation report, all of the above-mentioned criteria are explained in detail, indicating the number of points awarded for which kind of achievement. However, these criteria are not explicit to applicants to the course, which may lead to a number of applications not exactly matching the above criteria. Students raised the issue about the transparency of the selection procedure as apparently no feedback is given to applicants on the criteria and scores. When applying, applicants are also asked to provide evidence of their proficiency in English language. The panel concludes that the high number of applicants allows the programme to select the best students. The programme receives around 350 valid applications per year. During the first year the course was organised, in 2006-2007, the programme welcomed 25 students. In 2007–2008, a total of 33 students enrolled for the first time. In the following academic years - 2008–2009, 2009-2010 and 2010-2011, there were 27, 26 and 22 students enrolled respectively. The largest cohort of the new students comes from outside the European Economic Area (EEA). The number of EEA applicants, on the contrary, remains constant and at a low level, probably due to the high tuition fees compared to other programmes at the consortium partner institutes (with the exception of Irish students who pay equally high fees for regular Irish programmes). In the Erasmus Mundus I programme, EEA-students could not apply for an Erasmus Mundus grant. Over the past few years, the number of scholarships granted has continually declined. The lower number of EM scholarship students has been compensated by the enrolment of self-funding students.

The self-evaluation report states that students with a food science and/or technology related background have had the best chances over the past few years to enter the programme. The Sefotech.nut programme mainly recruits two types of students. One group of students comes from food science and technology programmes. These students mostly have a thorough understanding of technology and a good theoretical understanding of scientific phenomena and theories contributing to the understanding of technology. A second group of students is from nutrition science and biochemistry, and typically demonstrates a good theoretical knowledge of basic science and of nutrition science, but mostly lacks a technology background. The panel appreciates that a broad range of qualifications is accepted into the programme.

The selected students can follow an introductory course 'English for academic writing', before the actual start of the master's programme. The course's goal is to moderate differences between students regarding their proficiency of English language.

The panel is convinced that the programme coordinators succeed well in selecting the right students and, once selected, to bring them to a common level. A small suggestion for improvement could be to make the admittance score more explicit to applicants.

With regard to improvements to be made to the study programme, the assessment panel raises the following suggestions for change:
- The panel suggests making the admittance criteria and scoring methodology more explicit to applicants.

General conclusion related to theme 2: Curriculum

Given the positive scores on all aspects, the theme Curriculum is assessed positively.

SUBJECT 3 DEPLOYMENT OF STAFF

ASPECT 3.1. QUALITY OF STAFF

Assessment criteria:
The staff is qualified for the substantive, educational and organisational realisation of the curriculum.

The panel assesses the 'Quality of the Staff' as good.

The panel met a group of highly committed teaching and management staff during the visit. They have the necessary expertise for their assigned activities in this master's programme. For this EM programme, teaching and supporting staff are provided by all consortium partners, following their own HR policy. This also means that the assignment of educational tasks happens differently for every partner of the Sefotech.nut consortium. Within the whole Sefotech.nut programme, there are academic programme coordinators, an international officer, an organizational programme coordinator, senior and junior teaching staff members appointed. At every partner institute there is an academic local coordinator and often an administrative local coordinator present as well. They are responsible for the local management of the programme as well as for the issues regarding the interface between their institute and the consortium. Together they make up the Course Management Board and the Local Management Boards of the EM programme that advise all participating universities on the HR needs with regard to the programme. Yet, all HR decisions are taken more locally at the level of the individual institutions.

For the recruitment of senior staff members, the quality of competence profiles is based on similar characteristics in all four institutions, such as pedagogical and scientific skills, initiative, autonomy, judgment skills and integrity, problem analysis, commitment and enthusiasm, good communicative skills, ability to collaborate, focus on societal and professional development and an international mind set. Generally, the expertise of the staff matches the module requirements in the panel's opinion. Staff recruited for teaching activities belong to the regular university teaching staff and are qualified to PhD level. In addition to that, they are actively involved in research and scientific service programmes that belong to the department's or faculty's research groups. Each partner contributes to the programme with their own specific expertise. The panel however recommends that the programme relies even more on the variety of expertise that is present amongst the partner institutes than is the case today. It also feels that the international expertise of the teaching staff is to be increased through the network that is created with the newly admitted non-EU partners (cf. General Introduction).

The interview with the academic staff indicated that all KAHO staff members accept teaching activities within the programme in surplus of their regular teaching assignments. The panel recommends that the considerable efforts of lecturers should be more recognized, e.g. in the framework of promotions during their careers.

With regard to training and professionalization of the teaching staff, KAHO mainly focuses on professionalization activities with regard to educational expertise, research competences and discipline linked expertise, which is partly based on in-service training and participation in research activities. The primary efforts in professionalization have been realized by stimulating the competitive acquisition of disciplinary and interdisciplinary research projects as well as educational research projects. Furthermore, KAHO feels that its participation in (inter)national symposia and congresses on educational innovation and on the efficient use of research results boosts the professionalization of their staff.

At DIT, a *Charter on staff development* is in place. The Staff Training and Development Centre ensure that all courses and workshops are indeed in accordance with the needs of that charter. With regard to professionalization, they firstly rely on the staff development budget of the School of Biological Sciences to make attendance and participation in conferences, workshops, etc. possible. For continual updating of the staff's profile and to keep up with the pace of the professional field however, this budget should be increased according to the programme's self-evaluation report. Secondly, DIT provides professional training under the Training for Trainers programme. Thirdly, the School of Biological Sciences at DIT participates in several EU exchange programmes. These come in the form of formal agreements with universities and institutes, including those of the EM programme consortium but also Uppsala University, Turku Polytechnic and Turku University. UCP-ESB has an active staff professional development programme set up as well. At HA, professional development of staff is first of all related to the international relations that the institute has with universities such as the European University of Food Technologies (Plovdiv, Bulgaria) and ENSAIA (Nancy, France), but also with international institutes such as the Escuela Superior Politecnica Agropecuaria de Manabi (Calcutta, Ecuador) and the National Dairy Research Institute (Deetmed University at Haryana, India).

As far as the evaluation of staff is concerned, the EM programme's management team is responsible for the screening and follow-up of lecturers with regard to teaching abilities, specifically with regard to an English taught programme. The students' and graduates' evaluation of the staff plays an important role here. Their feedback is obtained at KAHO through (online) surveys and questionnaires. Students are questioned via two (one quantitative-qualitative and one qualitative) surveys. First of all, students are asked to submit their feedback *via* Toledo, the electronic learning environment, for each lecturer involved in teaching a specific module. These questionnaires contain four parts: course contents of the module, the lecturer (including his teaching methods and the used documentation/transcripts), overall teaching activity and a free text form to give individual opinions, remarks or comments with regard to the lecturer or module. Secondly, another qualitative evaluation is held at the beginning of every module by the project coordinator. This takes the form of a discussion that revolves around the contents and performance(s) of the previous module. Graduates are asked for feedback by completing a questionnaire that is aimed at collecting information on further studies, on work situations and on the opinion held on completed course modules. Surveys are always processed anonymously and in a confidential manner. For a lecturer, it is always possible to receive his personal evaluation results.

With regard to improvements to be made to the study programme, the assessment panel raises the following suggestions for change:

- The panel recommends improved recognition of the efforts of lecturers, e.g. in the framework of promotions.

ASPECT 3.2. REQUIREMENTS FOR PROFESSIONAL AND ACADEMIC ORIENTATION

Assessment criteria:
- A large part of the study programme is provided by researchers contributing to the development of the field of study (including research in the arts);
- A sufficient number of staff members in the study programme must also have knowledge of and insight into the relevant professional or artistic practice.

The panel assesses the aspect 'Requirements for professional and academic orientation' as good.

The panel appreciated that all of the staff members that provide educational activities within the EM programme are also active researchers. Since each partner contributes to the programme with their own expertise, the panel felt that the programme is able to match the expertise of an individual staff member to the specific module requirements (cf. aspect 3.1).

At KAHO, the entire programme's staff is linked to the Department of Chemistry-Biochemistry and more specifically the subgroup Biotech. The department is divided into several research groups. Its task is threefold: providing education, research activities and service to society. Some of the staff members providing education are linked to the research departments Molecular and Microbial Systems, Biosystems and Chemtech of the Catholic University Leuven, because the research groups at KAHO are structurally and functionally incorporated into those units. Most of the teaching staff and the visiting professors are active in biotechnology and biochemistry research and technology development. The outcome of this research is extensively used within the programme but the available expertise cannot cover all the needs of the Sefotech.nut modules. KAHO therefore relies on the specializations of the present senior staff and researchers but also on post-doctoral researchers who take up minor teaching activities as well as on graduate researchers and junior staff members for training sessions and practical lab work. On top of that, they call on their association partners and a professional network of visiting professors.

KAHO participates in international staff and student mobility as well as in international networks and educational projects. The latter are mainly Tempus projects. KAHO also holds a vast database of research networks and international contacts that they obtained via Flavour chemistry and analysis congresses, EuCheMS, the participation in scientific committees of international congresses, doctoral research projects of individual staff members etc.

The panel appreciated the current involvement of a high number of guest lecturers who are active in the industry or in administration. In the interview conducted with the programme coordinators, the panel learned that the amount of external lecturers employed varies according to the individual module and the institute. In KAHO, one out of three lecturers is an external contact working 1) for the Catholic University of Leuven or the University Ghent or 2) in the industry. The latter group of external lecturers, however, are also mainly academics that have developed a career in the professional sphere rather than in the academic one. DIT also relies on a significant proportion of external lecturers, particularly in the module Dairy and Total Quality Management. UCP-ESB revealed that they have a ratio of one to four lecturers that are external. HA also relies on guest lecturers, although they prefer to incorporate a few lessons by an external speaker within every module. The interview between the panel and the students revealed that the students thoroughly appreciate the involvement of guest lecturers because they get acquainted with different approaches to one subject and because it creates extra possibilities with regard to master's theses' subjects.

The international contacts of the teaching staff and the visiting professors are assured by the EM programme's international character according to the self-evaluation report. Staff members are also internationally oriented because of their research activities. Some of them are also involved in editorial boards of international journals, in the organisation of scientific committees or international conferences, or as a partner in explicitly EU-oriented research and education activities. As mentioned under aspect 3.1 however, the panel would like to see a higher involvement of the EM programme's staff members with those international contacts.

With regard to improvements to be made to the study programme, the assessment panel raises the following suggestions for change:
- The panel suggests to make more use of international expertise available at non-EU partner institutes.

Assessment criteria:
A sufficient number of staff members are deployed to ensure that the study programme is of the desired quality.

The panel assesses the aspect 'Staff quantity' as good.

In general, the panel considers that the staff provision is ample, yet the panel questions the fact that for many lecturers their task in this course means a surplus to their regular workload. The panel feels that the efforts of the lecturers with regard to the programme are not substantially recognized by the respective university (college) management, e.g. in view of promotions (cf. aspect 3.1).

During the academic year 2010-11, there was 62 staff members involved in the organization of the programme according to the information that the programme provided on request of the panel. 30 of those are connected to KAHO, 17 to DIT, 10 to UCP-ESB and 5 to HA. The self-evaluation report only referred to the KAHO institutional structures and procedures with regard to the quantity of staff in more detail. Eighteen members of the academic staff (out of a total of 20 academic staff members and 20 fulltime researchers) were actively involved in the Sefotech.nut programme. Twelve academic staff members of KAHO were involved in the actual teaching activities – 9 of whom had a PhD degree. The Catholic University of Leuven provided 5 academic lecturers and the University of Gent 1 lecturer for teaching activities that year. On top of that, KAHO also called on 6 external lecturers – two of them had a PhD. DIT had 16 academic staff members active in Sefotech.nut – all of them had a PhD, except for one individual who had a MsC degree. HA involved 7 professors with academic expertise. UCP-ESB had 5 academic staff members active in Sefotech.nut.

As for the age structure of the research and teaching staff involved in the EM programme, it can be said that it is in balance. 25 of 62 involved staff members (academic year 2010-2011) find themselves in the age category of 40 to 49 years of age, creating an obvious median. The same statement can be made for the individual consortium partners, with exception of HA that only deploys lecturers in the age categories 50-59 and 60-65 in the programme.

As for the gender balance, there is a larger number of male staff members active in the programme, and thus in every institute with regard to the EM curriculum. Over 70% or 45 of all staff members are male, in comparison to the involvement of 17 female individuals.

General conclusion related to theme 3: Staff

Given positive scores on all aspects, the theme Staff is assessed positively.

SUBJECT 4   SERVICES

During its site visit at KAHO, Gent, the panel visited well-equipped laboratories and facilities. Students and alumni are generally very satisfied with the provisions in the three other institutions. This appears from both the interviews during the site visit, and from the results of questionnaires. A very high percentage of respondents indicated high satisfaction with the facilities. Satisfaction concerning the lecture facilities and computer services are higher than the students' satisfaction with the library facilities.

Students of the Sefotech.nut master are either enrolled at KAHO or at DIT as regular students. This means they fully enjoy all regular facilities at both institutes, comprising educational and social services. At UCP-ESB and HA, students enjoy the facilities regularly provided in local student mobility programmes. In all four consortium partners, however, a local Sefotech.nut coordinator, the International office and the Students' services departments provide support in registration, study confirmation letters, transcripts, and all other student issues and procedures.

At KAHO, teaching and laboratories are accommodated within the School for Engineering. The panel appreciates that the Sefotech.nut-students dispose of a dedicated classroom for their sole use. It is equipped with about 150 books related to the taught modules, which were purchased from course funds. Students have access to this room at any time. Moreover, all theoretical classes for the Sefotech.nut students are taught in this classroom. The laboratory facilities in Gent are closely linked to the research niches that KAHO is specialized in: specific facilities for fermentation technology, meat technology and flavour analysis are present on the campus. Moreover, a total of nine undergraduate teaching laboratories, seven research laboratories and four pilot plant laboratories are available. They are used in the modules on malting and brewing, enzyme, fermentation, meat and environmental technology, food quality and safety, and flavour analysis. The campus library in Gent is at the disposal of the Sefotech.nut students. The library also makes use of an electronic catalogue that students can consult. Sefotech.nut students also have free access to the libraries of K.U.Leuven (Catholic University of Leuven) and the University of Gent.

At DIT, the Faculty of Science has a substantial number of adequately equipped lecture/tutorial rooms. Currently, DIT does not dispose of a room solely for full-time students of the Sefotech.nut programme, as is the case in Gent. . Extensive library facilities are available to students, as well as equipped laboratories for advanced science and engineering classes. Within the School of Biological Sciences, there are a total of ten undergraduate laboratories and five project/research laboratories, amongst others for cellular pathology, physiology/nutrition, cell and molecular biology, microbiology, food science – processing and biochemistry.

Also at UCP-ESB, well-equipped lecture rooms and library facilities are available to students. UCP-ESB's research accommodation includes eight laboratories: Analytical Chemistry, Enzymatic Technology, Food Bioprocess Technology, Non Food Bioprocess Technology, Microbiology 1, Microbiology II and Plant Biotechnology 1 and Plant Biotechnology II.

At HA, all teaching and laboratory facilities are accommodated in the Department of Agriculture, Nutritional

Science and Landscape Architecture at the Bernburg Campus and in the Department of Food Technology and Biotechnology/Chemical and Environmental Engineering at the Köthen campus. Library facilities are available both in Bernburg and Köthen. Both campuses also dispose of well-equipped laboratories for advanced science and engineering courses, including pilot plant facilities in brewing and malting, meat and meat products, cereal and cereal products, dairy products, biotechnology, food engineering and nutrition. In total, both departments dispose of twelve teaching and research laboratories in malting and brewing technology, fermentation technology, meat technology, cereal technology, food biotechnology, food quality and safety management (HACCP), environmental technology and flavour analysis.

To conclude, the panel states that the facilities it has visited at KAHO are of excellent quality. It also has good reasons based on students' testimonies to expect that the facilities of the partner institutions are of a high level, although the panel did not visit these other facilities.

ASPECT 4.2. STUDENT GUIDANCE

Assessment criteria:
- The tutoring of and the provision of information to students are adequate for the advancement of their study;
- The tutoring of and the provision of information to students meet the needs of students.

The panel assesses the aspect 'Student guidance' as good.

Based on the self-evaluation report and the interviews during the site visit, the panel was convinced that student guidance and support are well-organized, in particular within the International Office and the programme management at the coordinating institute. It is also clear to the panel that KAHO collaborates well with the other institutes, in specific with regard to student guidance. During the interviews with students and alumni, the panel heard nothing but high satisfaction with the support that they received and the easy contacts between students and professors.

At KAHO, students can rely on the International Office for general administrative issues and housing in particular. The Office also takes care of providing pre-arrival information to foreign students, of the organisation of the Orientation Days for foreign students at their arrival and it also provides support for administrative issues. The Sefotech.nut students' mobility is planned and organised under the coordination of the KAHO International Office and the Sefotech.nut secretariat. This includes the reservation of rooms for students travelling within the Sefotech.nut mobility scheme. The housing service at KAHO organises a kind of exchange system, which allows outgoing students to exchange rooms with incoming students as much as possible.

Likewise, all other consortium partners dispose of an International Office and student services. As far as housing is concerned, AH and UCP-ESB both offer accommodation in the universities' own student homes. In case there are no more rooms available in the student residences, students can receive support from the UCP-ESB Housing Service with regard to renting a room on the private market. In DIT, however, housing is much more of a problem. International students at DIT can apply for a temporary room, buying them time to find housing on the private market. Given the lack of rooms in Dublin and the fact that the students need a room for a rather short term (given their mobility scheme), the Sefotech.nut students often experience problems finding a suitable and affordable room. The cost versus the quality of housing in Dublin is a problem that is difficult to tackle by the programme coordinators. At the time of the site visit, however, the panel was pleased to hear that DIT is planning to build additional student accommodation. In Gent, students can apply for a room via the housing service upon receipt of their admission letter. The housing service manages a list of available

rooms.

The panel also observed that student support and guidance are very well-organized. After students have been assigned to either Gent or Dublin, they receive some pre-arrival information. In Gent, students are welcomed individually upon their arrival. During the first days in Gent, an introduction session is organised in which students receive practical information on living and studying in Gent and a range of administrative issues such as the registration procedure in the city hall, opening a bank account, health insurance, facilities, housing... A welcome session and a welcome lunch are also organised at the start of the academic year. During this welcome session, the programme director explains the objectives, the structure and the contents of the curriculum, how to select optional modules and plan individual mobility, where to find the lecture schedule and course materials, the common EMM-consortium rules, examination, thesis and all other aspects of the programme. Students starting the course in Gent are also offered the opportunity to take courses in Dutch for beginners. In Dublin, students of the Sefotech.nut course are absorbed into a bigger group of Erasmus-students from all over Europe – much more clearly than is the case in Gent. All necessary information is provided by DIT's International Service. As in Gent, students are also offered the possibility to follow courses in English academic writing. Generally speaking, the panel had the impression that efforts for welcoming the Sefotech.nut students are more intense in Gent than in Dublin.

Once students have settled in and the course is running, they are offered guidance and support regarding their mobility scheme in the programme and the specialisation in a domain of interest (choice of optional modules, professional competence semester and Master's thesis, cf. supra). The programme coordinators have experienced that this kind of guidance is necessary since many students are not familiar with determining an individual study pathway themselves. Students can address their lecturers during the course of the modules in case they face academic learning problems. All lecturers are encouraged to make direct contact with the students, particularly because of the high number of visiting professors who are much less available once the lectures that they provide are over. The experience of the programme coordinators learns that students particularly need guidance and support during the first few modules in the curriculum. Some students have very little experience in writing essays and need to adjust to this new way of working. For that reason, some time is reserved after the first module to reflect with students about what they have learned in terms of their study method and how they can do things differently - if necessary - in the consecutive modules. The panel supports such proactive initiatives.

In case of problems or complaints concerning the education or examination, students can contact an independent ombudsman.

General conclusion related to theme 4: Services

Given the positive scores on all aspects, the theme Services is assessed positively.

SUBJECT 5   INTERNAL QUALITY ASSURANCE

ASPECT 5.1. EVALUATIONS OF RESULTS

Assessment criteria:
The study programme is evaluated periodically, based on (among other things) measurable targets.

The panel assesses the aspect 'Evaluation of results' as satisfactory.

The quality assurance framework of the Sefotech.nut master is a combination of the quality assurance frameworks used at KAHO and DIT. The mission and vision of both institutes are similar and consequent according to the Sefotech.nut consortium and therefore are able to provide a quality framework for the entire consortium with regard to the discussed EM programme. The quality assurance of the programme, however, is facing different institutional structures and procedures in the partner institutes and these differences do not allow that all quality aspects and criteria are covered by one common quality management system. The panel therefore feels that there is not an integrated quality assurance system present, which has consequences for an adequate, integral evaluation of the entire curriculum (cf. infra).

At KAHO periodic evaluation consists firstly out of reviews that are held every seven years, with regard to the conformance to the accreditation process cycle. Secondly, however, alumni and graduating students are asked to fill out a review on the relevance of the curriculum, more specifically with regard to their satisfaction towards it and their employability, every year. This is carried out on an annual basis. The internal curriculum review enables the detection of possible problem areas and reflection on the current curriculum and its aims. Although there is an evaluation structure and time path present at the level of the institute, the individual programme committees are responsible for the actual realization and implementation of reviews. KAHO provides several questionnaires to facilitate that process. These include reviews for a satisfaction analysis for students on lecturers and teaching methods, and for an analysis of graduates' satisfaction. The school also sets the frequency for other questionnaires that KAHO provides, i.e. a review concentrating on students' work load assessment, one on students' satisfaction analysis and another one on staff satisfaction analysis.

At programme level, some internal quality assurance evaluations were held in 2010 with regard to the Sefotech.nut master course. However, the limited number of students as well as the low response rate make the results indicative only, particularly in relation to the (annual) alumni questionnaire. The limited set of data available from the enquiries include output on teaching quality, an analysis of students' satisfaction, an analysis of graduates' satisfaction, an analysis on graduates' employability and staff feedback. The output of all questionnaires was collected and submitted for discussion to the module coordinators and to the local management board.

At the end of each module the educational/teaching quality is also reviewed by the students via the electronic learning platform. The panel appreciates the fact that the programme enables students to periodically provide feedback on the courses' quality. In these reviews, questions focus on teaching style and methods, used materials and the (relevance of the) module's content. These questionnaires are complemented with an open discussion at the start of every module, regarding the past module, in which the programme coordinator enters into a discussion with the students. If action is required, the programme coordinator submits a proposal to the

local management board or the project management board for a formal decision. When immediate action is required, the boards will make decisions retroactively. During the interviews, the programme coordinators stressed the importance of mutual trust and fair play between the consortium partners with regard to such actions. The panel feels that the evaluation cycle is adequate as to uphold the quality of the programme but it also has issues with the quality evaluation's informal basis. The panel believes that the programme would benefit from a quality assurance framework on the level of the whole programme. The panel was of the opinion that this is linked to the incomplete integration of the consortium partners' quality assurance systems. In other words, the panel felt that it is necessary for the programme to have a true, integrated curriculum evaluation as well and recommends the establishment of an integrated quality assurance system for the entire consortium.

External quality assurance of the programme is in a way assured by the participation in the Erasmus Mundus master courses' programme and EM Action 1, as well as by the acquisition of EM scholarships for students and scholars, as they require an annual application to be submitted to EACEA. This means that after the first year of each course an intermediary report is prepared, and ultimately a final report has to be written and submitted in order for the course to be granted.

Although the panel feels that the internal quality assurance is in place, it also determined that most of the evaluations and their follow-up happen on an informal basis.

With regard to improvements to be made to the study programme, the assessment panel raises the following suggestions for change:
- The panel recommends the development of an integrated quality assurance system for the entire consortium.
- The panel advises putting in place mechanisms to enhance the completion rate of feedback questionnaires by students.

ASPECT 5.2. IMPROVEMENT MEASURES

Assessment criteria:
The results of this evaluation are the basis for demonstrable improvement measures that contribute to the achievement of the targets.

The panel assesses the aspect 'Improvement measures' as satisfactory.

KAHO follows the plan do check act-cycle (PDCA) only implicitly by translating their quality assurance cycle in a four stage process: 1) definition of the educational mission and vision, 2) implementation of quality aims in education, 3) evaluation of the education performance and 4) follow-up of teaching assessment. In general, the panel feels that the PDCA cycle should be more explicitly introduced.

Within the Sefotech.nut master, the EM local management boards and the local course coordinators are responsible for the implementation of necessary changes at module level. The continuous monitoring of the quality of the programme is supported by the EM management board and the local management boards that decide on an action plan, detailing the types, the timing and the organization of the future quality-control initiatives. Today, these planned initiatives include the (re)evaluation of the objectives and outcomes of the programme in relation to the creation of an extra module (cf. infra), a curriculum and module content analysis by the students, and hearings and/or structured enquiries conducted with alumni, students and the

work field.

From the interviews with students, it can be deduced that they feel that their remarks are taken into account by the programme management. The panel thinks, however, that the programme could provide more explicit feedback to the students with regard to their initial feedback. This would make it more transparent to students whether something concrete followed out of their remarks. Nevertheless,, the panel appreciates that various problems have already been tackled by the programme through identification of the issues and appropriate actions.

Since 2006 (i.e. the start of the programme), several changes have been introduced following evaluations and discussions at the level of the EM programme. These include:

- The development of appropriate student and scholar selection criteria.
- The modification into a programme of modules, and the related grouping and timing of the optional modules.
- The adaptation of the Flemish definition of the study load, i.e. 60 credits for 1500-1800 hours of study load, by all consortium partners. And the creation of an ECTS-marking transfer table that translates the highly different marking systems of the partner institutes to one, common mark.
- The creation of an ad hoc procedure with regard to late arrivals of students due to visa problems.
- The authenticity of submitted documents on application is now monitored by an official examination of credentials in China by the DAAD and by the data provided by NARIC for all other countries.
- The advanced English language course was changed into a course 'Scientific reporting in English language', following feedback of students that they lacked competences in English communication skills.
- Following the (expected) termination of the first phase of the EM programme in 2010, the preparation of a new proposal for extension of the programme in the second phase was approved by the EM Management board in 2008. A new proposal was submitted in April 2009 and it was approved in 2010.
- Adopting additional third country partners in the consortium in Erasmus Mundus II to enable worldwide student exchange through the EMI-Action 3 programme.
- Adaptation of course contents to improve graduates' employability through the addition of a 'professional competence module' that will lengthen the study period by a semester.
- Attracting more students for improved course sustainability through the creation of the KAHO Sint-Lieven International fund, which will grant scholarship to students who were not selected in the EM scholarship programme. The idea is to attract more (European) students.

Given the lack of an integrated quality assurance system at programme level, the panel could not always verify whether modifications and changes to the programme are based on a conscious analysis of evaluations and assessment of weaknesses by stakeholders and students. The introduction of the professional competence module is e.g. not motivated by clear evidence as whether it remediates a weakness in the programme. Opposed to this is the reported lack of practical laboratory skills (which was mentioned by several students) which has not led to any remediation so far.

With regard to improvements to be made to the study programme, the assessment panel raises the following suggestions for change:
- The panel advises improvement in the mechanism of feedback to students concerning the way in which their remarks are taken into consideration for further improvement of the course.

ASPECT 5.3. INVOLVEMENT OF STAFF, STUDENTS, ALUMNI AND PROFESSIONAL FIELD

Assessment criteria:
Staff, students, alumni and the professional customers of the study programme are actively involved in the internal quality assurance process.

The panel assesses the aspect 'Involvement of staff, students, alumni and professional field' as satisfactory.

The involvement of staff members in the quality assessment of the curriculum and the improvement of Sefotech.nut is dependent on local procedures and practices, but is generally considered an inherent and essential part of their teaching assignment. Members of the academic staff are also directly involved in quality assurance via the Sefotech.nut local management boards. Visiting lecturers from the industry and research institutes are also expected to take responsibility for the quality of their courses, but they are, however, not structurally involved in Sefotech.nut's formal quality assurance structures or procedures. Nevertheless, there exists a culture of informal feedback and analysis.

Students are involved in the quality assurance of the EM programme through their participation in the online quality enquiries, through local student representatives in Gent and Dublin who provide feedback to the local programme coordinator, through general student feedback via open discussions with the programme coordinator (at KAHO), and through individual discussions and feedback with lecturers of the programme modules. Although students feel that their remarks are taken into account by the programme management, the panel thinks that the programme can undertake more efforts to provide feedback to the students with regard to their initial feedback. The panel however feels that students do have the possibility to directly engage with the programme's quality assurance and its outcomes. It also appreciates the presence of the local student representatives who provide valuable feedback, but it regrets that there is a lacking involvement of these students in the Management Board of the programme.

The panel thinks that the involvement of alumni in the EM programme is ample. They stay in touch with the programme and they are able to give feedback on their past experiences with regard to the modules and the entire curriculum, but also with regard to their current employability and the demands of the professional field. The panel feels however that the programme management could consult the alumni more formally with the aim of evaluating the course and making concrete suggestions for improvement. Currently, they are only formally involved in the evaluation of the programme by an online questionnaire. The response rate that the programme had in 2009 was almost 40%. The rest of the alumni's involvement is informal, via direct contacts of alumni with local coordinators or teaching staff.

The involvement of the professional field is also informal, although the programme is able to provide steady contacts with both academics and the work field. The academic contacts are mainly visiting professors and EM scholars who have a longstanding link with one of the partner institutes. In addition to that, the academic contacts are made up of alumni who pursue a PhD study. The industrial contacts of the programme are mainly visiting lecturers from the industry. The EM programme usually recruits these guest lecturers from its own professional networks and the personal networks of the hosting institutes' staff members. Some of these lecturers keep close contact with the programme, which provides informal feedback. Proof of the industrial network and their willingness to provide feedback can be found in the letters of endorsement that a number of companies have supplied for the programme's application for Erasmus Mundus I and II.

With regard to improvements to be made to the study programme, the assessment panel raises the following suggestions for change:

- The panel advises the programme management team to consider the integration of a student representative in the management board.
- The panel recommends more formal consultation of the alumni with the aim of evaluating the course and making concrete suggestions for improvement.

General conclusion related to theme 5: Internal quality assurance

Given the positive scores on all aspects, the theme Internal quality assurance is assessed positively.

SUBJECT 6   RESULTS

ASPECT 6.1. ACHIEVED LEARNING OUTCOMES

Assessment criteria:
- The realised final qualifications are in line with level, orientation and discipline-specific requirements of the desired competences.

The panel assesses the aspect 'Achieved learning outcomes' as good.

The questionnaire completed by the programme alumni showed that 90% of 34 interviewees feel that the programme meets their expectations. There were some complaints with regard to the limited contact with the work field that alumni had during their study, but this will be remediated by the insertion of the professional competence module in EMII in September 2011.

With regard to job possibilities, it can be said that the work field's appreciation can be derived from the high chances of employment after graduation. 26 of 34 alumni that were interviewed were employed at the time, most of them in food industry. Four students were accepted for a PhD in the same field within universities internal and external to the consortium. The panel appreciates that this number of alumni already has obtained a PhD position. The remaining 4 alumni were still unemployed at the time of the questionnaire; all of them for over 9 months after graduation. Amongst the 26 employed alumni it is reported that it was easy to find a job, although some of them returned to their former employer. 77% of the alumni reported satisfaction with their current position that is either in the industry (39%), services (19%), education (15%) or health care (12%). Over 80% of the employed, interviewed alumni responded that their job is closely related to the orientation of the Sefotech.nut programme and is in line with the educational level of the course. The panel was very satisfied with the high level of satisfaction of the alumni, who testified during the interviews that the programme greatly contributed to their professional careers.

Internationalisation and the international objective of the programme are closely related. First of all, there is the international inflow of students, who have various backgrounds. In total 111 students from 38 different countries had participated in the programme up to and including the academic year 2010-2011. Secondly, there is the international character of the teaching staff that is gathered from the four different consortium

partners. Visiting lecturers and scholars are usually also senior teaching staff or experienced researchers linked to research institutes associated to a consortium partner. Up to and including the academic year 2010-2011 for example, 22 scholars were attracted for a short stay of up to three months at KAHO. Although there are not a huge number of students enrolled (25 on average) every academic year, the Sefotech.nut programme staff told the panel during the interviews that it is particularly important for them to participate in this EM project, supporting collaborations with other universities in and outside Europe.

The quality of the Master's thesis is protected by the use of a set of 'criteria' for assessment in each institute that allow attributing marks and weighing the several contributing sub-aspects of the thesis adequately in the final mark. The programme also tries to objectively assess the Master's theses by the organisation of a jury of assessors who have both academic and professional backgrounds. The overall scores of the Master's theses are high, with a grand average of 80%. From the theses reviewed by the panel, it was clear that topics of the theses were embedded in the core area of expertise of the different institutes. Hence, the students were well supervised and could work in a good research environment. As was pointed out in aspect 2.8, however, the different consortium partners use different criteria and evaluation procedures. As a consequence, due to the lack of common evaluation system, the panel had difficulties to link the differences in quality of the theses it has read with the relative scores obtained and had to take the different kinds of evaluation into account.

The Sefotech.nut staff feels the quality of the Master's thesis is confirmed by: 1) the experiences of the supervising research and teaching staff, 2) the quality experienced by the work field representatives, 3) the degree of academic or industrial relevance of the subjects, and 4) the requests of academic or industrial partners for alumni's placement in their research units. 85% of the interviewed alumni also feel that the Master's thesis made up a meaningful part of the programme. Eight of them felt, however, that the Master's thesis, however, lacked professional relevance. The management board feels this is a normal consequence of the Master's thesis' focus on scientific research abilities. 79% of the 34 questioned alumni felt the supervision of the Master's thesis was adequate. The programme will remediate here some more by trying to find an equilibrium between the students' individual responsibilities and the (supervisor's) guidance. They will specifically focus on a close technological and/or scientific guidance with regard to the educational aspect of the thesis, while leaving room for independence of the students with regard to the organizational aspect.

ASPECT 6.2. STUDY EFFICIENCY

Assessment criteria:
- Target figures are formulated for the study progress in comparison to other relevant study programmes.
- The study progress is in line with these target figures.

The panel assesses the aspect 'Study efficiency' as good.

The educational yield of the programme is high with regard to the number of students graduating and the time span in which they finalize the programme. With regard to the 86 students who started the programme in the academic years 2007-2008, 2008-2009 and 2009-2010, the programme reports that 83 of them graduated within three semesters, and hence experienced no study delay. Two others had seen their study duration lengthen with one year. In both of these cases this was due to a Master's thesis that was not handed in before the submission deadline. Only one student stopped the course for reasons of a personal nature. In the panel's opinion, these high pass rates prove that students are well selected and highly motivated. Moreover, the modular structure of the course contributes to a close monitoring of students and immediate remediation after each module, reducing the risk of failures.

The Sefotech.nut course makes use of a specific selection procedure to monitor the inflow of new students.

The procedure takes into account different parameters. From the self-evaluation report and during the interviews, it appeared to the panel that there is a higher chance of selection and admission if students already have a master's degree, although this isn't a demand made by the programme. Usually there are around 350 applications every year from which the programme selects a maximum of 27 students every academic year, based on their prior qualifications and training.

The study results of graduates have been consistent since the programme went in full operation during the academic year 2006-2007. With an average of 78%, there is only a minor deviation between the 76% average in 2006-2007, the 77% in 2007-2008 and the 78% in 2009-2010. These scores are in line with those of KAHO and DIT in other regular programmes. It is however the panel's feeling that the evaluations do not use the full scale of the scoring system. More differentiation could be made between the strongest and weakest students, in particular in the assessment of the master thesis.

General conclusion related to theme 6: Results

Given the positive scores on all aspects, the theme Results is assessed positively.

GENERAL OPINION OF THE ASSESSMENT PANEL

The assessment panel evaluates the Master of Science in Food Science, Technology and Nutrition as one that has good generic quality elements and it expresses a positive final opinion since the different aspects and criteria of the six subjects from the accreditation framework are satisfactory.

TABLE WITH SCORES, SUBJECTS AND ASPECTS

		Aspect score	Subject score
Subject 1: Objectives			S
	Aspect 1.1: Level and orientation	S	
	Aspect 1.2: Discipline-specific requirements	G	
Subject 2: Curriculum			S
	Aspect 2.1: Relationship between aims & objectives and contents of the curriculum	S	
	Aspect 2.2: Requirements with regard to the professional and academic orientation	G	
	Aspect 2.3: Coherence of the programme	S	
	Aspect 2.4: Size of the programme	OK	
	Aspect 2.5: Student workload	S	
	Aspect 2.6: Coherence of structure and contents	S	
	Aspect 2.7: Learning assessment and testing	S	
	Aspect 2.8: Master's thesis	S	
	Aspect 2.9: Admission requirements	G	
Subject 3: Deployment of Staff			S
	Aspect 3.1: Quality of staff	G	
	Aspect 3.2: Requirements for professional and academic orientation	G	
	Aspect 3.3: Quantity of staff	G	
Subject 4: Services			S
	Aspect 4.1: Facilities	E	
	Aspect 4.2: Student guidance	G	
Subject 5: Internal Quality Assurance			S
	Aspect 5.1: Evaluations of results	S	
	Aspect 5.2: Improvement Measures	S	
	Aspect 5.3: Involvement of staff, students, alumni and the professional field	S	
Subject 6: Results			S
	Aspect 6.1: Achieved learning outcomes	G	
	Aspect 6.2: Study efficiency	G	

Explanation of the scores of the aspects (quadruple scale):

E	Excellent	'best practice', an (international) example
G	Good	the quality stands out above the generic quality
S	Satisfactory	fulfils the demands with respect to the generic quality
U	Unsatisfactory	does not fulfil the demands of the generic quality
NA	Not Applicable	

Explanation of the scores of the subjects (binary scale):

S	Satisfactory	fulfils the demands with respect to the generic quality; there is no scale to indicate further excellence
U	Unsatisfactory	does not fulfil the demands of the generic quality

The aspect 2.4 - Size of the Programme - is scored as 'OK' if the study programme fulfils the legal requirements with respect to the duration of the programme, expressed in ECTS credits.

APPENDICES

APPENDIX 1 – CURRICULUM VITAE OF THE MEMBERS OF THE ASSESSMENT PANEL

Harry Gruppen has been a full professor in Food Chemistry at Wageningen University, Wageningen, The Netherlands holding the chair of the Laboratory of Food Chemistry starting 1 January 2008. Previously, he held positionpositions of Personal Professor, associate professor and assistant professor in Food Chemistry since January 2005. Harry Gruppen was trained in Food Technology at Wageningen University. After a number of years in the food industry, he returned to Wageningen University, received his PhD degree with honours in 1992 on the topic of cell wall biochemistry and has pursued an academic career since then. Professor Gruppen has supervised numerous students, PhD candidates and postdoctoral researchers within the area of proteinstructural analysis and enzymatic modification of food carbohydrates, proteins , and phytonutrients. He is the (co-)author of more than 120190 scientific publications, the editor of a number of scientific journals. He has been a member of the Board of the Educational Institute (OWI) of Wageningen University and is   member of the Management Team of the graduate school VLAG.

Paul Hughes has been professor at the International Centre for Brewing & Distilling (ICDB) at the Heriot Watt University, Edinburgh, since 2005. The ICBD, a unit within the School of Life Sciences, is strongly industry-focused and committed to providing education that brings new technical talent into the alcoholic beverage industry. The research activities of ICDBICBD range from the highly applied (e.g. independent setting of new ingredient specifications) to longer-term underpinning work in novel detection systems, in computational chemistry applications and in sensory/flavour science, from flavour chemistry to integrated psychophysics. Before his academic career, he was principal scientist at Heineken (1999-2005), research scientist and manager quality and raw materials research at Brewing Research International (1990-1999) and scientific officer at the Health & Safety Executive.

Ton Kallenberg studied at the pedagogical academy in The Hague and gained some years of experience as a teacher in primary education. Then he studied pedagogical sciences (didactics with as specialization organization & policy) at Leiden University. For about 15 years, he fulfilled several functions on educational management at Leiden University and the Erasmus University Rotterdam. Between 1997 and 2003, he has been Director at the Educational Expertise Centre Rotterdam (OECR) of the Erasmus University Rotterdam. He performed projects in the areas of educational professionalism, education organization & curriculum development, governing, leadership, and ICT & education. From 2003 to 2009, he has been linked as Professor at the School of Education at the Hogeschool Leiden University of Applied Sciences. Moreover, he cooperated from 2004-2007 in several projects of the Ruud de Moor Centre of the Open University the Netherlands. From 2009 to 2011, he was Director Education at ROC Leiden College for Vocational and Educational Training. Since September 2011, he is Head of the Staff Department Education Research and Student Affairs at Erasmus University Rotterdam. In recent years he served several times as a member of quality assurance peer review panels on Dutch and Flemish universities and university colleges programmes. His research and publications are focussing on the roles of academic middle managers at strategic innovation in the higher education, on institutional cooperation in education and on teacher education programs.

Mai Nguyen Tuyet holds a Master's degree in Food Technology (University of Gent/Catholic University of Leuven). She currently works as a research assistant and PhD-student at the Laboratory of Food Technology and Engineering, Department of Food Safety and Food Quality, Faculty of Bioscience Engineering at the University of Gent.

Guido Van Huylenbroeck has been a professor in agricultural and rural environmental economics at the University of Gent since 1995. He finished his PhD research in 1988 at the same university, in which he developed a multicriteria methodology for the evaluation of land consolidation projects in Flanders. From 1988

till 1995, he was employed as a senior researcher at the University and was mainly active in the further development of multicriteria methods to analyse the conflicts between agriculture and the environment. His experience is particularly developed in the following fields:

- agricultural policy,
- economic valuation of natural resources,
- rural development and agri-environmental policies,
- transaction cost and property rights issues in environmental regulations,
- economic analysis of collective innovation projects in agriculture,
- optimal strategies in land consolidation projects,
- analysis of structural developments in different sectors.

He has participated in more than 30 international congresses and in about 50 different projects. He was also coordinator of different European projects and has published about 150 publications, of which about 50 in international journals or books. Currently, he is the dean of the Faculty of Bioscience Engineering at the University of Gent.

APPENDIX 2 – DECLARATIONS OF INDEPENDENCE OF THE MEMBERS OF THE ASSESSMENT PANEL

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(TO BE ADDED LATER ON)

start	Finish	*duration*	**Thursday, May 19th**
9:00	12:30	3:30	*Preparatory meeting of the assessment committee + review of documents (exams, study material…)*
12:30	13:30	1:00	*Lunch*
13:30	14:00	0:30	*Meeting with representatives from Katholieke Hogeschool Sint-Lieven, Dublin Institute of Technology, Hochschule Anhalt and Universidade Catolica Portuguesa*
14:00	14:15	0:15	*Break*
14:15	15:45	1:30	*Programme management team, authors of the self-evaluation report & programme coordinator - amongst others discussion about intended learning outcomes of the master's programme and quality assurance*
15:45	16:00	0:15	*Break*
16:00	17:00	1:00	*Students (including student representatives)*
17:00	17:15	0:15	*Break*
17:15	18:15	1:00	*Academic staff (with representatives of the different locations where the master's programme is organised)*
18:15	19:00	0:45	*Meeting with alumni (max. 10, preferably from the 3 most recent academic years)*
19:00	20:00	1:00	*Informal meeting - reception*
20:00			*Dinner for the assessment committee*

start	Finish	*duration*	**Friday, May 20th**
9:00	10:00	1:00	*Staff responsible for the student support and guidance, ombudsperson, person responsible for internationalisation*
10:00	11:00	1:00	*Master's thesis guidance*
11:00	12:00	1:00	*Site visit : lecture halls, lab work facilities, library, computer facilities, learning environment*
12:00	13:00	1:00	*private meeting of assessment panel - lunch*
13:00	13:45	0:45	*Concluding meeting with the programme management team*
13:45	15.00	1:15	*Private conversation with assessment committee on demand*
15:00	18:00	3:00	*Preparation of oral report*
18:00	18:15	0:15	*Presentation of the first impressions of the assessment committee*