

A.1 Academic quality - Course content (30 % of the max. score)

A.1.1 Describe the EMMC's **objectives** (including in socio-economic terms) in relation to the **needs analysis** in the field(s) concerned.

The **overall objective** of the **EMMC - FIPDes** is to provide top-level and up-to-date education that qualifies the graduates to cope with the huge challenges in the sector of food innovation along with product design and packaging, while developing the aptitude to adapt to future developments.

Needs analysis

The food and drink industry is one of Europe's most important and dynamic industrial sectors. To maintain its position and improve its share on world markets the industry requires greater use of technical know-how and a considerable strengthening of its capacity for innovation.¹ Enterprises have to put more emphasis on R&D to compete with the US and to do so they need personnel trained in research and innovation².

At the same time, as a result of a changing European population in terms of age and occupation, food and drink processors face constant change in consumer demands, with health issues constituting a major consumer concern. While partly related to an ageing society, food safety issues as well as obesity and allergen reactions have increased awareness of the relationship between food and health. This trend is leading to the growth of foods with specific properties and is also positively influencing the sales of organic foods³.

Although price remains a key criterion in purchasing decisions, pleasure, quality and convenience are driving factors of market evolution. Changes in consumer lifestyles are increasing the interest for foods and/or drinks that are easier to prepare, serve, eat, and that are both immediately available and portable. The food and drink sector is thus continuously facing change. Food product differentiation as well as the ability to satisfy evolving consumer requirements will be essential to ensuring market competitiveness and survival.

Over the coming years, agrifood enterprises across the world will need to address the numerous challenges of globalisation. Behind this globalisation, questions of sustainability increase the complexity of innovative approaches in the food production and distribution. New skills will be required to both decrease our consumption in resources and provide food for increasing numbers of people⁴.

Innovation at every stage along the value chain will be critical to the future development of the food industry. A significant enhancement and substantially increased investment in the area of R&D is thus a key for industry and a priority.

The state of the art in product design and food innovation

New product development combines strategic and organizational actions with technical effort, the former dealing with the management of the development process, strategic placement and launching of the new product, the latter concerned with the design of the product and its manufacturing process (Costa et al., 2006). From a practical point of view, the design of a new product involves the interaction of two major pillars: (i) composition and properties and (ii) processing, storage and usage conditions. Both contribute to the overall quality of the product. In parallel, new product development should result in a customer-centred product. The increase in the knowledge of human metabolism in health science leads to a greater need for bioactive ingredients in the form of functional foods. At the same time, satisfying customers involves the mastery of culinary approaches and molecular gastronomy in order to act upon the organoleptic features of the product.

Another issue in process innovation is to deal with environmental challenges to improve the sustainability of the business. The increased production volume of food packaging has prompted the European Community to develop a policy designed to limit the quantities of materials used, to promote reusage and recycling of packaging. Designers should be able to comprehensively identify the best solutions for specific new packaging. The best solution depends on the packaged products and their environmental impacts and depends on the overall packaging system (secondary and tertiary). Holistic approaches to be adopted

¹ CIAA annual report 2006.

² Aho, E. (2007). Trends and outlook in world economics, culture and food. International Conference perspectives for Food 2003, Brussels, European Commission - Directorate E 6 Biotechnologies, Agriculture, Food.

³ <http://www.euromonitor.com>

⁴ Belasco, Warren. (2007). Trends and outlook in world economics, culture and food. International Conference perspectives for Food 2030, Brussels, European Commission - Directorate E 6 Biotechnologies, Agriculture, Food.

include taking into account distribution requirements that may lead to choices of different primary packaging designs to those which would be made if we did not adopt this holistic vision.

The educational issues

Food innovation comprises “functionalization” in order to endow products with specific health-enhancing properties, calling upon new processing techniques and packaging decisions. Young people interested in the field of food product design need a good background in each of the following areas: food science and technology, managerial and consumer science, health and sustainability issues. The proposed Erasmus Mundus Master Course in Food Innovation and Product Design (EMMC-FIPDes) has been developed to match these needs.

EMMC-FIPDes aims to offer high quality international training, both in terms of scientific knowledge as well as in didactic skills, provided by a limited number of excellent university groups within the EU in the field of food science and product design.

The EMMC-FIPDes aims at providing a European dimension in the knowledge-intensive area of food Research & Development which is operating internationally. It will meet the need for highly qualified graduates as well as helping adapt educational systems to the demands of the knowledge society. It will thus enhance the attractiveness and visibility of European higher education worldwide and stimulate the process of convergence of degree structures across Europe. The EMMC-FIPDes aims at training students who wish to contribute to the development of innovative, sustainable and healthy food products. Graduates will be able to find positions in and outside Europe, either in their country or in a national branch of an international food brand.

A.1.2 Explain the EMMC's **added value** compared with existing masters courses in the same field at national, European and international level.

To date, the EU offers very few advanced programmes in food innovation and/or product design. The Zurich University of Applied Sciences (ZHAW) offers a national Master in “Life Sciences” with a M2 specialisation in “Food and Beverage Innovation” (www.lsfm.zhaw.ch/master) but does not treat product design as a major component of innovation. Wageningen University (WUR) offers a national Master in “Food Technology” with M2 specialisations in “Gastronomy,” “Food innovation and management” and “Product design”. It also offers a joint M2 specialisation, “European Master Degree in Food Studies” (developed with AgroParisTech, Lund and Cork Universities), mainly focused on food technology and product development rather than on innovation management (www.eurmscfood.nl). This master leads to the only WUR diploma. Finally, the EMMC Sefotech in “Food Science, Technology and Nutrition” (<http://www.sefotechnut.org>) presents trends of Food Science & Technology and health issues in a global context but offers M2 modules focused only on specific food fields (i.e. cereals, meat, fats & oils, food safety, etc.).

All these programmes are thus aimed at training students either in food innovation management or in food technology but none merges the aspects of food innovation and product design, nor do they offer courses treating the essential interests of packaging sustainability or innovative culinary approaches.

The EMMC-FIPDes added value

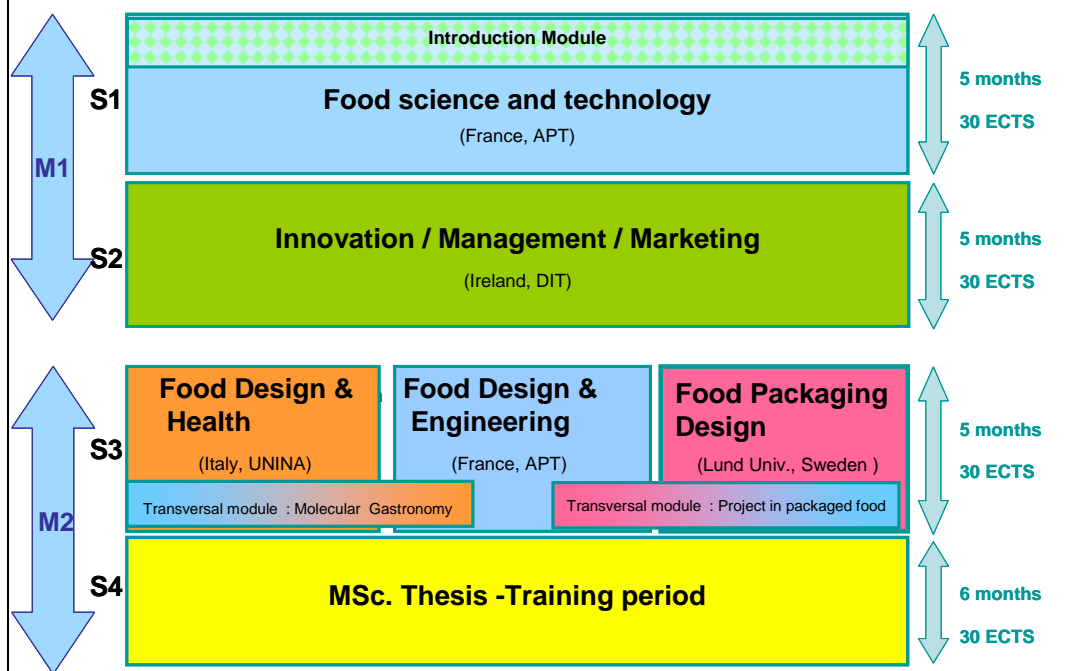
is its integrated approach “*from materials to packaged product*”, including technical, entrepreneurial and theoretical knowledge in food innovation merged in a teamwork-based learning system. Sustainability issues are approached in M1 and specifically treated in one of the three available M2 options dealing with food packaging design and logistics. Moreover, the culinary and molecular gastronomy approach is fully integrated into the food design philosophy and will offer interesting and complementary skills for innovation.

The added value and the course contribution to the education and career development is also depicted through a specialised semester offering an industrial/research-based placement in a company or a R&D laboratory in a partner’s or associate member’s institution. This practical semester, along with their involvement with food companies, will assure the students of professional competence and enhanced employability. External lecturers invited from other institutions of higher education (from EU and third countries), industry, and companies will highly improve students’ creativity and innovation skills while opening their minds to the global food issue.

A.1.3 Present the **structure and content** of the EMMC and justify the added value and relevance of the **mandatory mobility** component.

The Joint FIPDes EMM Course is scheduled over two academic years and will result in the accumulation of 120 ECTS credits. The overall structure of the FIPDes EMM course is shown in the following figure:

FIPDes EMMC general structure



The aim of the first study year (M1) is to provide a thorough and broad introduction to both food science & technology and innovation management, so as to assure mastery of core-knowledge in these fields. Details about M1 are given in the figure below:

M1 organization

S1: Introduction and FS&T Modules at AgroParisTech (France)		30 ECTS
Introduction module		
1.	Welcoming and practical aspects; The EMMC-FIPDes philosophy, presentation of the teaching staff of all universities	(2 ECTS)
2.	Project Management	(2 ECTS)
3.	Introductory Lectures (Sustainability, Global market...) and Food Culture Seminary	(2 ECTS)
4.	Visit to food firms	(2 ECTS)
		APT End of August
Compulsory modules		
1.	Food Science	(3 ECTS)
2.	Food Processing Engineering	(3 ECTS)
3.	Data Analysis in FS&T	(3 ECTS)
4.	Junior project M1	(9 ECTS)
Support module :French Language		(2 ECTS)
2 optional modules among : Food flavour, Food packaging; Food structure; Food safety; Sensory analysis; Experimental strategies; Biotechnologies in food industries.		(6 ECTS)
		APT September-January
S2: Innovation / Management / Marketing Modules at DIT (Ireland)		30 ECTS
Compulsory modules		
1.	Technology and innovation management	(5 ECTS)
2.	Food regulatory affairs	(5 ECTS)
3.	New food business creation	(5 ECTS)
4.	Marketing communication and consumer behaviour	(5 ECTS)
5.	Food prototype development and evaluation – end of junior project M1	(10 ECTS)
		DIT February-June

Mandatory mobility is a fundamental aspect of our approach applicable to all students. Students will attend the first semester of M1 at AgroParisTech (Paris, France) and the second at DIT (Dublin, Ireland).

A **strong point of integration** among partners and students is the compulsory **introduction module**, which will be organized at the beginning of the first semester at AgroParisTech (France) to present the teaching staff from all Consortium institutions and give students practical tips for their stay. Introductory lectures on the main challenges of food innovation will be given by the teaching staff of Consortium institutions and by guest lecturers from the professional sector. A seminar on food culture will be given to introduce European food culture, society and R&D issues.

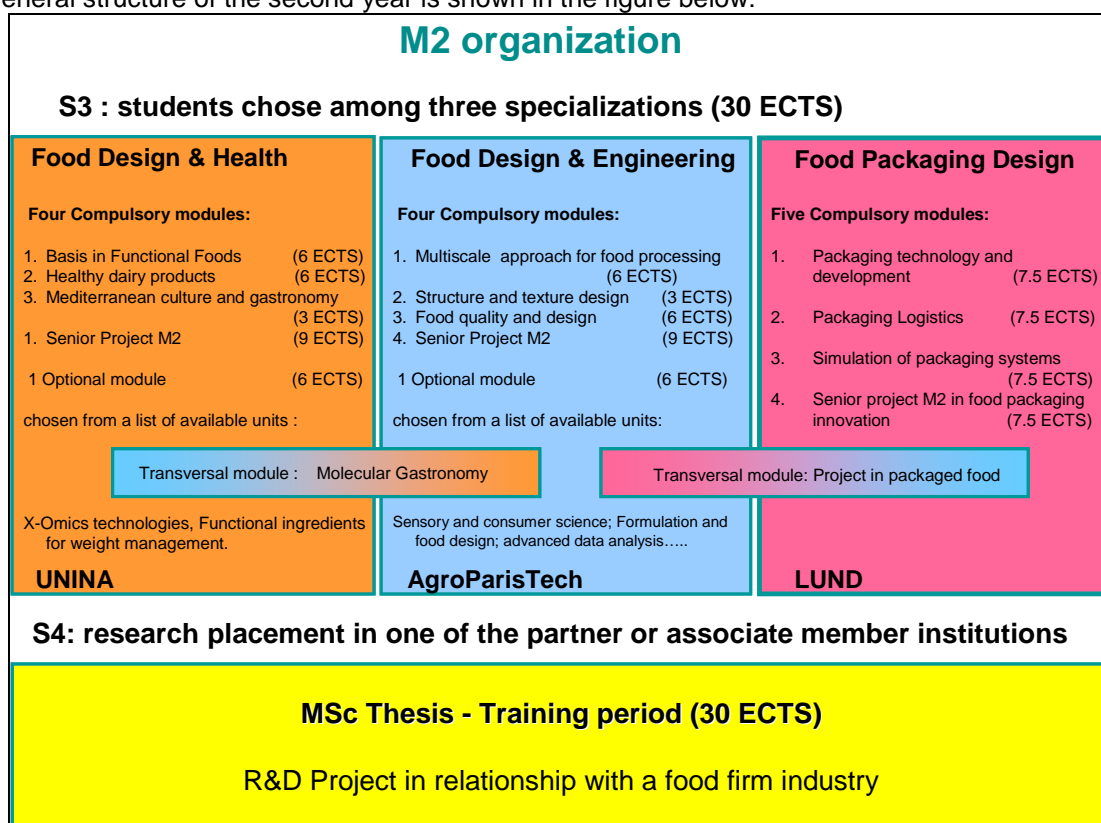
In addition to the compulsory core courses, students will choose two optional modules among a list already

available in the national AgroParisTech master. This degree of freedom will make it possible for students to develop specific skills in line with their professional project. During the first year of study (M1) students participate in a **junior project**, a double module covering the two semesters. Teams of students are in charge of managing a practical R&D project related to innovation with the assistance of a professional. They build their project progressively thanks to the different knowledge and skills acquired in both universities.

This joint module strongly structures the first year. The complementary fields covered by DIT and AgroParisTech modules will make it possible to achieve the junior project goals with success, another added value of mobility.

The second study year (M2) offers three specialisation pathways (options) concerning **strategic and emerging sectors of food product innovation**. Each option is based on the partner universities' research and teaching strengths and can welcome a maximum of seven students. The orientation and selection of students will be made during M1 by the Consortium Committee. A salient feature of the M2 courses is the close co-operation with industry and interacting within active learning environments. Detailed description of the course implementation and module description is given in Annex A1-1.

The general structure of the second year is shown in the figure below:



The three options are:

- 1- **Food design and health:** Students will attend courses at UNINA (Napoli, Italy). The main goal of this option is to train students in developing functional foods addressing specific health needs (such as hypoallergenicity). They will also receive basic knowledge in food regulations related to health claims. Furthermore, the objective is to provide the students with knowledge in food culture and culinary traditions of Mediterranean countries.
- 2- **Food design and engineering:** Students will attend courses at AgroParisTech (Paris, France). The main objective of this option is to give students knowledge and technical skills for process-based food design in order to understand, choose, design and optimise degrees of freedoms on food manufacturing operations. The development of food quality by combining formulation and processing is a key figure of the specialisation. The senior project module strongly structures the student active learning by mobilising theoretical and practical knowledge.
- 3- **Food Packaging Design,** Students will attend courses at Lund University (Lund, Sweden). The main objective of this option is to give students knowledge of an integrated systems view of food packaging design in a value chain perspective. The main objective can be divided into sub-objectives which aim at giving students a basic knowledge in packaging technology and development, based on user requirements, product requirements and sustainable development around the package. Furthermore, the objective is to provide the student with in-depth knowledge in how packaging systems influence food supply chains and vice versa, i.e. packaging logistics. The teaching is problem-based which

drives the student to investigate the central concepts and principles treated in the course module to gain advanced skills in analyzing complex systems, especially packaging and logistics systems, and carrying out projects in real life.

Strong points of the EMMC-FIPDes:

- ☞ As shown in the previous scheme, a **transversal joint module** of Molecular Gastronomy will run over the first two options. This module has been expressly designed for the EMM-FIPDes Course and will be run by the French and Italian partners. This transversal option will be assured by visio-conferences organised by the associate Partners INRA (Hervé This) and Teagasc (Juan Valverde). Practical experiments will be run in parallel at the Italian and French universities.
- ☞ **A second transversal joint module of Innovation Integrated Food & Packaging Project** will be proposed over second and third options. This module will be run by the Swedish and French partners and co-designed by the two teams. Projects in New Product Development will be proposed to the students and mixed teams will be constituted, composed of two students in France and two students in Sweden. The Swedish part of the team will support the packaging development and the French part will develop the new food. Visio-conferences will be organised for presentations of specific knowledge required to conduct the projects. Students' teams will have access to free collaborative platforms.
- ☞ Whatever the specialisation chosen, during the third semester (S3), students will undertake an **M2 senior project** strictly related to the specialisation issues. This module is called "senior" due to the experience gained during M1. Student teams will be in charge of managing an R&D innovation project in **close relationship with a food company**. The learning outcomes of these modules will enable students to successfully handle the training period of semester four.
- ☞ During the fourth semester, students will carry out the **training research period (30 ECTS)** which will lead to the writing of the Msc Thesis. Topics will be proposed by the EMMC scientific committee and will concern an R&D innovation study developed with the **industrial partners and academic associate members**. This training period can thus be carried out within the Consortium or one of the Third Country associate members.
- ☞ Finally, the structure of the joint master is built in such a manner that **mobility is functional to the learning pathway** chosen by each student. It will allow them to accumulate appropriate expertise present in four leading EU institutions to develop a **unique professional profile** which could not be developed in any one country. One can add that the particular choice of partners is well adapted to this goal as our Consortium includes representatives from Sweden, Italy, France and Ireland, each with the specific cultural and gastronomic history and habits.

A.1.4 Justify the **learning outcomes** relevance in view of the students' **future academic opportunities** (e.g. at doctorate level) and **employability**.

There is one specification of competence for the first year, and one for each of the three options of the second year (see annex A1-1).

The Main educational aims of the programme are given below:

- provide students with a basic understanding of the principles and processes that underpin innovative food development, including management aspects;
- develop students' intellectual, practical, communication, teamwork, self management and professional development skills, in a specific context of food R&D;
- inculcate the values of scholarship: inquiry, reflection, integrity, open-mindedness, evidence-based thinking, collegiality;
- provide specific knowledge in the field of healthy food design, product and process design or food packaging;
- develop the students autonomous capacity of carrying out an a research project using the professional skills achieved during the courses;
- create the connection with the food company and the work environment.

The choice of options will of course determine the specific qualifications; however, the general foundation in food development will make it easy for graduates to meet the demands of many different jobs in practice. The successful student will be able to apply to high-level R&D academic or industrial positions, i.e. Innovation manager; Product manager; New product developer; R&D scientist.

A.1.5 Justify the relevance of **the consortium composition** and the expertise of the key **academic staff** involved to achieve the EMMC objectives.

Each of the 4 partner institutions already offers several Master programmes at national on international level, which serve as the basis of the EMMC FIPDes (see details in annex A1-2).

Teaching expertise and complementarity

The Consortium partners have complementary research and teaching expertise which has been used to

build the integrated and new learning programme by offering **three specialisations where partners have centres of excellence** and in which students wish to develop specific expertise.

- 1- **AgroParisTech** (Department of Food and Bioproduct Science and Engineering) will focus on food science and technology with emphasis on development and processing of food products and engineering skills. AgroParisTech will be in charge of S1 modules and of the “Food design and Engineering” option in M2.
- 2- **UNINA** (Department of Food Science) will focus on food science and technology with emphasis on the formulation of functional foods related to health as well as to x-omics approaches related to food quality. It will be in charge of the “Food Design and Health” option in M2.
- 3- **DIT** (Faculty of Tourism and Food) will focus on entrepreneurial skills with emphasis on innovation management and culinary approaches. It will be in charge of S2.
- 4- **Lund University** (Department of Product Design) will focus on Food Packaging development related to sustainability and logistics issues. It will be in charge of the “Food Packaging Design” option, where extensive international research expertise is present in the field of user driven food packaging design, packaging design for sustainable development, integrated product and packaging development and packaging logistics.

An overview of the Consortium complementary research-based teaching expertise is shown below. For a detailed list of academic staff and scientific CV's see Annex A1-3.

Partner \ Expertise	AGROPARISTECH	DIT	UNINA	LUND
1. Food culture	X	X	X	
2. Data analysis	X			
3. Food safety	X		X	
4. Food regulation		X		
5. Marketing and consumer Science		X		
6. Project management	X	X	X	X
7. Innovation management		X		X
8. Food processing	X		X	
9. Food Biochemistry	X		X	
10. Food Structure and texture design	X			
11. Flavour science	X			
12. Food quality development	X		X	
13. Formulation	X	X	X	
14. Sensory analysis	X	X	X	
15. Functional food	X		X	
16. Nutrition & Health			X	
17. Proteomics, Lipidomics, metabolomics			X	
18. Sustainability and logistics				X
19. Molecular Gastronomy	X	X		
20. Packaging Design				X
21. Process and product design	X			X
22. Packaging Logistics				X
23. Simulation of complex systems				X

Key profiles. The key staff of the EM-FIPDes Course consists of internationally recognised European specialists in the field of food innovation and product design, most of them holding a professorship or a PhD degree in their area of specialisation. Administrative key staff is involved in the development and implementation of the programme as members of the executive team (see further in § A3.1). Moreover heads of the national Masters will also contribute to the building of the joint master degree and will help in EMMC-FIPDes programme promotion. In order to propose the optimal support to the students, staff from the Foreign Affairs Units and from the Scientific Directions will be involved.

External lecturers invited from **academic associated members from third countries** will give high level lectures on specific topics. Their participation will thus highly improve creativity and innovation skills and open to the global food issue. **For this aim the EMMC FIPDes consortium committee will allocate 8 scholar grants (1/2 month per prof, per year).** Moreover these academic associated partners, will also contribute to the dissemination of the course outside Europe and provide good students, propose research training possibilities and participate in the EMMC advisory board (see an exhaustive list of staff and CVs in Annex A1-4 and letters of intent in the annex A2-3).

A.1.6 Explain the EMMC **interaction with the professional socio-economic/scientific/cultural sectors** concerned.

The EMMC FIPDes has strong interaction with the professional and scientific sectors of food innovation and research. The course contribution to the education and career development is depicted in introducing a specialised semester offering an industrial/research based placement in a company or an R&D laboratory in partners' and/or associated members' institutions. The strong involvement of food companies during the projects and the training periods will lead to gain professional competences and enhance employability.

The **Research EU associated partners** (see Annex A1-5) will be involved in teaching activities at different levels. INRA (France) and Teagasc (Ireland) will be involved in the Molecular gastronomy teaching, during the M2 and will give opening lecturers in the introduction modules. CNR (Italy) will contribute to teaching by giving lecturers and seminars about proteomics and lipidomics in M2. It will also give introductory lectures about food culture during the introductory module. They will propose research training possibilities and participate in the EMMC advisory board.

Several industrial partners will also participate in the EMMC implementation with a "light" or a "strong" involvement comprising the following tasks (see letters of intent and support in annex A1-6) :

1. Take part to the advisory board meetings;
2. Propose training during joint activities;
3. Propose student's project (M1 & M2) topics;
4. Propose research training;
5. Give financial sponsor;
6. Participate to quality evaluation.

A.2 Course integration (25% of the max. score)

The Course Integration criterion focuses on issues related to the way the EMMC will be implemented in and across the partner institutions as concerns the delivery of the course itself as well as the students' selection, admission, examination and results recognition mechanisms.

A.2.1 Justify the extent to which the EMMC is organized in a truly integrated way.

The overall curriculum is jointly developed on the basis of existing modules present in the local masters exploiting the partner diversity and complementarities.

Moreover, 2 joint modules have been specially developed to address specific learning needs; each of these modules will be managed by two out of the four partners: these are the joint Molecular Gastronomy module (AgroParisTech / UNINA) and the joint Senior Project M2 in packaged food innovation (LUND / AgroParisTech).

Finally, seven new modules have also been specifically created: the Introduction Module, the Data Analysis in Food Science & Technology, the Junior and Senior projects, Mediterranean Culture and Gastronomy, Omics Technologies in Food Science, and Functional Ingredients for Weight Management.

All the partners provide local courses and participate in the joint courses and joint course evaluation.

AgroParisTech and DIT propose full semesters during M1 (S1 and S2) and AgroParisTech, LUND and UNINA offer three M2 options. All partners propose research training in S4.

Partners are all involved at the scientific and administrative level (see annexe A2-1 with list of administrative staff and A1-5 for teaching staff).

- ☞ Scientific commitment: all the teaching staff of the national masters is involved in the development and implementation of the EMMC FIPDes.
- ☞ Institutional commitment: Key administrative staff of each partner is involved from the beginning of the joint course. It shared experience and good practices to build the joint curriculum. The Lund University has a long experience in building joint masters as it is already involved in 4 EMMC. Lund University is involved in the Erasmus Network JOIMAN as one of the European leaders in joint programs (<https://www.joiman.eu>). AgroParisTech, already member of the ISEKI network (<https://www.iseki-food.eu>), has built the EURODOCAGRO platform which develops an original methodology to build and manage joint programs (see annex A2-3). DIT is a participant of the [Iseki2 and Iseki3 Socrates Network](#) (Integrating Safety and Environmental Curriculum in Food Studies) and has a staff member who is a working group leader in the [Iseki-Mundus Network](#) (Integrating Safety and Environment Knowledge In World Food Studies) in Improvement of international quality assurance systems in food studies.

All the University Presidents signed the letter of intent and the letter of national validation (see annexes A2-3 and A2-4). Lund University, however, has a very long procedure of validation (18 months). For this reason, Lund University will update the letter of intent as full partner, as soon as the official validation process is carried out by the end of 2011.

The EMMC -FIPDes is thus a newly created course which implies that the consortium partners set up one organizational and one academic structure:

- one joint website;
- one joint application form and application procedure for all applicants;
- one set of application criteria;
- one tuition fee;
- one joint admission board;
- one system of evaluation criteria;
- one diploma supplement.

A.2.2 Justify the extent to which the EMMC is **recognized in participating countries** and leads to the award of an **official degree** by each of the partner institutions. Describe the type of degree(s) that will be awarded to successful students.

The EMMC FIPDes is fully recognised by all partners. This recognition (Master components and the Course as a whole, including the degrees) is based on the Lisbon Convention, i.e. the Convention on the

Recognition of Qualities concerning Higher Education in the European region (11 April 1997).

At the time of application we can certify that all the successful students will get a triple degree from UNINA, AgroParisTech and DIT (see the "Letters of national validation," signed by the directors/presidents of these institutions, annex A2-4).

All successful students will receive a **joint diploma supplement** from the four institutions.

All the national diplomas are already recognised by National assessment institutions.

Due to administrative issues, Lund University is not able for the moment to sign the letter of national validation. As written in the letter of intent, the procedure for validation will be finished in 2011, meaning that when the first class of EMMC FIPDes students starts the 2nd year of their joint master (M2) Lund university will be able to deliver its diploma (MSc. in food packaging design). At that moment, we expect that all students will get the diploma from the four institutions.

There are no national constraints against the building of a joint diploma, only time-consuming procedures. The four partners are actually working towards a joint diploma: a working group composed of the local master representatives has been set up.

A.2.3 Describe the consortium **joint student application, selection and admission procedure**.

All procedures of application, selection and admission have been jointly set-up by the consortium.

All students (EU, non EU) apply to the coordinating institution by submitting an on-line application form (from the course website) and delivering the required supporting documents to the address of correspondence. Similarly, all requests for information from students and scholars will be directed to specific mail addresses (info@fipdes.org and admin@fipdes.org) which will be managed by the coordinating institution (AgroParisTech). The administration will promptly reply to all queries as well as confirm receipt of the on-line application and support documents. The relevant documents will be scanned and uploaded to the FIPDes website in the "Partners only" section, ahead of the general admission board, greatly simplifying selection process. After the application deadline, the admission committee will select the candidates by analyzing each complete application separately and awarding points according to the selection criteria. A complete application is composed of the online application form and of all the required documents: certified copies of Bachelor degree, copy of national passport, test of English language proficiency and two reference letters all submitted and presented to the office.

The selection criteria have been jointly established by all partners and will be applied in a fair and objective way (see Annex A2-5). According to the total points obtained, a student ranking will be generated, using a selection grid which will be further developed. Life-long-learning is also taken into consideration by these selection criteria: students are given points according to international and work experience. With these points the older applicants can compensate their weaknesses in other areas. However, in order not to over emphasize the experience that is accumulated along with age, BSc and MSc are considered as equal qualifications.

Each student is informed separately whether he has been selected for the main or the reserve list (with ranking number) or rejected. The reasons for rejection will be clearly specified. Each reserve student is informed about the possibility of joining the course without the Erasmus Mundus grant and given details on costs (tuition fee, living expenses, transport costs, etc.)

The official admission of students and scholars will be after official approval from the EACEA. Admission letters will be sent to students who confirmed their readiness to accept the offer. Instructions regarding visa application will be included on the course website with clear reference in the admission letter.

A.2.4 Describe the **joint examination methods and mechanisms** in place between the consortium partners to assess the students' achievements.

Examination criteria and organisation

All the subjects and components are fully awarded in ECTS by the hosting institution. The implementation of the ECTS system at the universities has enabled easy acknowledgement of exam results for incoming and outgoing students. In the course unit descriptions of each module, evaluation, assessment mode and criteria will be explained.

Examination and evaluation regulations

When a candidate fails a module on a first sitting, it must apply to the course committee for permission to retake the examination. In special documented circumstances, permission to retake a module may be granted once.

The decision with regards to the candidate's performance in modules will be taken by the examination board for the course (locally). The final decision with regards to the candidate's performance and the award of the MSc degree will be made by the joint Consortium Committee. These decisions will be ratified by the examination board of each university.

The triple degree will be awarded on successful completion of all required modules, the introductory module and the MSc. Thesis.

The compensation between modules or between modules and the thesis is not permitted.

Student performance will be assessed in accordance with the general assessment regulations agreed upon each participating institution at the end of each module.

Reference to the European Qualifications Framework (EQF) has been made to establish the EMMC FIPDes learning outcomes. Moreover the ISEKI network outcomes have been considered to compare the qualification levels of different countries and different education systems.

A Joint Diploma Supplement in line with the structure developed by the EU, the Council of Europe and UNESCO will be provided by the Consortium. The Diploma Supplement will provide a detailed description of the chosen tracks and modules. By converting all marks to the ECTS grade scale, it will allow an assessment of performance across countries and universities, as well as across students (see annex A2-6).

A.2.5 Explain how the **students' participation costs** to the EMMC have been calculated and agreed upon by the consortium.

The fees charged by universities are different due to differences in national policies. However, all EU or third countries students will have to pay the same tuition fee to the consortium irrespective of their universities of study. Within the consortium, arrangements have been made to divide the fee and additional costs among universities to ensure that all universities receive an appropriate amount of money (covering local tuition fees and compensation for additional activities for the EMMC-FIPDes). The fee for third-country students will be € 8,000 per academic year whereas the fee for EU students will be € 4,000 per academic year.

The tuition fees include the following student costs:

- ☞ registrations at two to three universities;
- ☞ costs of the introduction module and of the accommodation of the students during this event;
- ☞ Bench fees related to thesis research and internship.

See details in annex A2-7.

A.3 Course management, visibility and sustainability measures (20 % of the max. score)

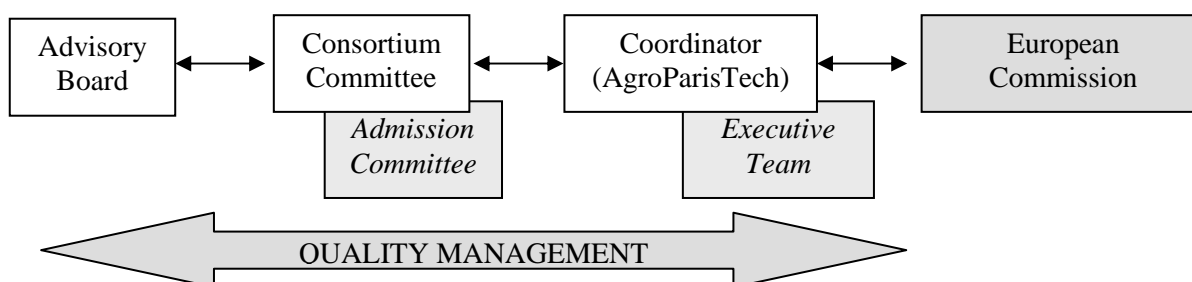
A.3.1 Describe the organisation of **the cooperation mechanisms within the consortium.**

The role of each partner is clearly defined. The organisational arrangements and cooperation mechanisms are built upon the experience gained in other EMMC and EMJD programs, the high level of established cooperation and trust amongst the partner institutions and their staff members. The participating institutions have committed the human resources necessary to implement the programme.

According to the regulations stipulated by the European Commission, **the coordinating university** of the EMMC-FIPDes consortium (AgroParisTech) will supervise the management and payment of scholarships using the official system of the university. The financial administration office is well experienced in taking care of international payments. The scholarship received by the coordinator from ERASMUS MUNDUS program will go directly to the beneficiary by bank transfer as it is defined in the specific grant agreement for EMMC. All bank operations are documented in a specific budget line of the programme in the global budget of AgroParisTech.

The partners take all part in the consortium and other committees, organize the welcoming of the students in their universities, their modules, the logistics, the teaching and evaluation of the students. They participate in the recruitment and the promotion of the programme.

The overall framework for collaboration is settled in the Consortium Agreement (Annex A3-1) which will be signed by the legal representatives at the earliest stage of EMMC-FIPDes. The composition of each governance organ is given in Annex A3-2. The following scheme represents the governance and management scheme of the EMMC-FIPDes:



Coordinator: AgroParisTech is the coordinator of the the EMMC FIPDes; Most of the administrative tasks will be centralised at AgroParisTech: dissemination, preparation of candidate selection, budgeting, report writing, publicity, development and maintenance of website, financial management, including scholarship and budget distribution. These tasks will be organised by the **executive team**, constituted by both scientific and administrative staff.

Consortium committee: The main organisational component is the Consortium Committee, which is composed by 8 members: 2 from each of the EMMC-FIPDes partner (including the coordinator, chair of the Consortium Committee). The Consortium Committee has to:

- define, evaluate, modify the content of the educational programme
- ensure the quality of the training programme of the EMMC-FIPDes by evaluating the outcomes annually (during the Orientation Meetings)
- monitor the supervision and integration of the MSc students
- organise admission procedures
- ensure distribution of scholars across partners
- discuss and chose the projects in partnership with industries
- ensure that academic standards continue to be maintained on the programme
- ensure that a market demand exists for the programme and that it continues to be academically viable;

The EMMC Consortium Committee will meet twice a year to strengthen collaboration:

- The **Orientation Meeting** takes place during the introduction module in August. All aspects of the EM-FIPDes MSc Course will be discussed by the Consortium Committee.
- The **Admission Meeting** concentrates on the admission of students (see A.3.2). A specific commission (**Admission Committee**) will be in charge of student selection. During the student selection, the EM consortium committee will also use telephone and video conferences.

Moreover, flexible and easy communication will be the rule between all the members of the consortium committee. Throughout the year, operational communication will take place by e-mail, by phone or by bi-lateral meetings when necessary. A private access intranet site is also planned to facilitate the information flow between the staff and teachers of each partner university. The key issue of the partnership is mutual confidence and respect, which have been developed during the years of co-operation and the months of the EM-FIPDes elaboration.

Finally, the **Advisory Board** is composed of students of representatives from working field, and of experts of joint programming and joint degree implementation from other European universities. The representatives from working field can be the associated members (both academic and industrial), industrial members of the EMMC-FIPDes business club or other external experts. All these experts have expressed their support to the EM-FIPDes. They will advise the Consortium Committee on the implementation of the EMMC-FIPDes: relevance of the programme, professional opportunities and building of joint degree. More precisely, all representatives from any institution associated with the EMMC will receive regular information and will be invited to express his/her views on the EMMC. Questions given during the course of the programme by the External Experts will be discussed within the frame of the Consortium Committee. Students will give their opinion on EMMC-FIPDes courses and organisation. The advisory board will meet during the Introduction Module in August.

The Introduction Module will be a good opportunity to organise the different committees to minimise travel and accommodation costs and to take advantage from the presence of y-1 and Y-2 students for discussing and evaluating the EMMC-FIPDes curriculum.

A.3.2 Provide information on the **partner institutions' contribution** to the EMMC and describe the way the EMMC will be managed from a **financial** point of view.

Quality and availability of Human support

The core staff of the EM-FIPDes Course consists of internationally recognised European specialists in the field of food innovation and product design, most of them holding a professorship or a PhD degree in their area of specialisation.

In total, a scientific staff of more than 20 members will participate to the implementation of the EM-FIPDes Course. There is thus sufficient human support to follow the students closely in teaching, tutoring, mentoring, and coaching activities.

In order to propose the optimal support to the students, further human resources will be involved, i.e. people from the Foreign Affairs Unit and from the Scientific Direction of the coordinator (AgroParisTech) will be involved.

Financial aspects

Finances will be handled by the coordinating institution, AgroParisTech. At the other universities, there will be one contact person concerning administrative and financial affairs. The administration of the EMMC-FIPDes is locally funded by regular allocations to the universities.

Tuition fees, added to the 30,000 € funded by the European Commission will be managed by the coordinator on a special account and will be used for:

- ☞ Staffing an administrative assistant;
- ☞ Communication and exchange needs of the consortium. These needs will include production of brochures and documentation, development and maintenance of a website, mailing to third countries, travel of the international Advisory Board;
- ☞ Implementation of the introduction module (travel of one academic staff per participating university, and accommodation costs for both the students and the staff);
- ☞ Academic management of the MSc Course; edition of the FIPDes-EMMC Diploma Supplements;
- ☞ General administration of the consortium.

Details are given in the annex A2-7

In addition to the Erasmus Mundus scholarships, the EMMC-FIPDes programme seeks to provide additional scholarships to both the European and non-European students. A financial contribution will be asked to the industrial partners involved in the junior and senior project modules as they will benefit of the project outcomes. About €2,000/year/project will be asked for a total of about 10 projects carried out (estimated incomes of € 20000). Some industrial partners will remunerate MSc thesis training periods each year. European students without Erasmus Mundus scholarship can apply for Erasmus scholarships or for other national grants depending on the University. In that aim, the consortium and associate members will spread as much information as possible on the EMMC-FIPDes website (links to national and international

organisations according grants). Apply according to the rules of the sponsor will be under students' responsibility.

A.3.3 Describe the consortium **development and sustainability plan** designed to ensure the proper implementation and continuity of the EMMC beyond the period of Community funding.

The EMMC-FIPDes programme is already strongly supported by our institutions, and it is based on already existing curricula. The link between partners and associated members is not restricted to this EMMC and will last, so facilitating sustainability. It also shall drain additional national scholarships. Moreover, the EMMC-FIPDes has strong links with industry, and we are in good position to increase their number over the years as well as their financial support (see annex A3-3).

A budget plan was established for the next 5 years with different scenarii depending on the number of students who will take part in the programme. The objective is to recruit a minimum of 20 students. After the first 5 years of programme implementation, the EMMC-FIPDes will be as well established as that the sustainability of the EMMC should not be an issue.

We will also create a business club composed of food companies. We will ask the food companies to support the programme by granting scholarships to students or by financing the master programme itself. The idea is to valorise the actual network of research and professional cooperation. The business club has the ambition to :

- Associate competences to facilitate the research programme related to Food companies
- Do a prospective work to anticipate the future evolution in the market
- Propose a structure for discussion about similar concerns between executives of food companies.

The partners in the business club will:

- Contribute financially to the programme or give scholarships
- Take part to the advisory board and contribute to the future orientation in the teaching of the programme
- Present the specificity of their competences to manage specific foods and the link with the training in the programme.

To optimising the feasibility of the joint programme, we choose a "light" management structure, and the correct size for solving any single detail that impairs the convergence of the national educational systems. Based firstly on a collection of skills and in depth courses proposed by the partners, EMMC-FIPDes provides the means for progressive merging, adopting equivalent quality standards and recruiting top level motivated students. Our aim is to act for the mutual recognition of the training scheme, for the uniform structure in ECTS, to produce sustainable training and supervision plans and to disseminate good practice for MS Students' training for future international careers. We expect EMMC-FIPDes to be the core of the expansion of this training scheme and to enrol new European and non European universities.

A.3.4 Describe the **course promotion measures** taken by the consortium to increase the course's (and the EM programme's) visibility and attractiveness.

All partners in the consortium are involved in the promotion of the master's programme in their own country and abroad. The coordinator is moreover implicated in bigger actions of promotion. A flyer will be created to describe the EMMC-FIPDes study program and will be used for promotion and communication. Indeed, the Communication and International Relations Services of the various partners will cooperate in the course promotion. The following actions are planned:

- E-mailing to National Institutions worldwide (i.e. French Embassy, Campus-France offices, and Alliance française for France) due to their connection to local Universities helping in targeting potentially interested students. All mailing will be done using existing distribution lists and the channels established for information within the consortium, enriched with scientific councils at embassies and partners international universities;
- Dissemination by Third Country associated partners;
- already existing research and training networks (i.e. the ISEKI MUNDUS network) and cooperation tools with third country institutions;
- referencing on educational European and international websites, such as www.masterportal.eu
- missions of recruitment in different countries (China, India, Ukraine, Kazakhstan, Turkey, Brazil, USA, etc.), thanks to partners' worldwide universities networks.
- E-mailing to former students of the institutions, to former invited Professors
- student alumni networks (e.g. Erasmus Mundus Alumni association <http://www.em-a.eu/>);
- E-mailing to Professionals in Agri-food sectors.

Dedicated Website:

We're preparing a website that will be constantly refreshed, and we are producing a booklet presenting EMMC-FIPDes MSc course. The website will announce both the launching of the project and the key figures, dates and events. The website will consist of intra- and extra-net sections. It will be a management tool allowing (i) access and handling of teaching data (student's career development plans and achievements, etc.) and administrative data (on-line application forms and eligible dossiers), (ii) announcement of all network events and training, (iii) information notices. It will be used for the recruitment strategy to attract students from all over the world and help them expanding their international profile, and will ensure a follow up of the career of the EMMC-FIPDes students. It will also be a valid tool in animating the virtual community, gathering training, scientific and professional information relevant to the field covered by the programme. An electronic newsletter based on the main achievements of the network will be also available on the website.

A.4 Students' services and facilities (15% of the max. score)

A.4.1 Describe the nature of the **information (/support) provided to students** prior to their enrolment and the way this information will be delivered.

The EMMC-FIPDES website will provide a detailed description of the Master. The different partners will be presented and their implication in the programme will be detailed (links will be also proposed to university and professional websites) as well as the main profiles of teaching staff. The structure of the EMMC-FIPDes content and courses will be presented in the study programme flyer (also available on the website). Academic, administrative and financial aspects of the programme will be detailed in the "Student Handbook". This document, also online, will be more practical and focused on local situations. For each course, the learning outcomes, pedagogical tools, numbers of ECTS and evaluation will be described, as presented in Annex A1-1. Student requests of information will be directed from the website to specific mail addresses (i.e. info@fipdes.org and admin@fipdes.org).

The detailed procedure for application and selection will be described and application will be possible online, thanks to an interactive website, which will ease the selection procedure both for students and for the consortium. All documents relative to the EMMC-FIPDes will be downloadable. Students will find links to facilities services proposed in each country as well as link to grant-proposing organisms. These elements will help them to prepare their venue. A discussion forum will be open for students to communicate and favour networking.

A.4.2 Describe the content (and, if available, provide a model) of the **Student Agreement** defining the rights and obligations of the two signing parties.

The Student Agreement defines the students' and universities' obligations and rights. It will be signed by all parties at the beginning of the programme. The document will be downloadable on the EMMC-FIPDes website and a model is presented in Annex A4-1.

A.4.3 Present the **services** that will be provided by the partner institutions to **host students / scholars**.

All partners have considerable experience in welcoming and hosting international students. They provide high quality services to host candidates, either by their own or through specific agreements with regional associations aiming at social integration of foreign students. AgroParisTech, DIT, UNINA and Lund University have dedicated international offices, employing several persons in each country, which will help preparing the arrival of the fellows. All foreign students are assisted with incoming procedures and formalities such as visa, residence permit, opening a bank account and an insurance contract and finding accommodation.

In Paris, the reception Office for Mobile Students (in the International Students Cité of Paris) is there to welcome the students and to help them from the day they arrive.(help with the formalities, inform on cultural gaps and proposes to each one, during their stay, language courses and leisure activities...).

In Dublin, the International Student Office provides information, advice and assistance to all international students from the time of their initial enquiry and throughout their studies at DIT. They are there to answer any queries about application procedures, study programmes, student services, and all practical. The team at the International Student Office is always available to provide guidance and support. It helps organizing international friendship lunches, International Student Organisation events and trips throughout the year. Students can follow developments relating to the office on Facebook.

Students can thus better concentrate on their studies, while care is taken for their integration in their host country.

Some special help will be dedicated to students coming with their family, for accommodation but also for practical organisation (visa, school for children...). Accommodation is also adapted for students with disabilities and a particular attention is given for their integration.

The Coordinator, in close cooperation with the international offices of each partner university and with the EMMC-FIPDes students association, will provide accurate and up-to-date information packages to new students. He helps the students in obtaining visas and residence permits by providing both the students and the relevant embassies/consulates with needed documents, he helps the students to acquire adequate insurance and open a bank account immediately upon arrival to allow quick transfer of scholarships to their bank accounts.

With regard to scholars, the Coordinator provides them with documents regarding the scholarship, but the

host university is responsible for sending the scholar an invitation letter and other documents to allow smooth visa/residence permit procedure in each country.

Students will have access to language courses where they will work and live, to libraries, canteens, study rooms and computer facilities (including personal work place e-mail address). Rooms or family flats will be booked by the accommodation desk of the consortium universities before their arrival. All the consortium universities are able to accommodate disabled students. Scholars are assisted with accommodation by their host universities.

Student mentors and students' associations play an important role in providing social integration to students. Native student tutors take the EMMC-FIPDES students to see local events from sports events to pub quizzes, students' association organise events from cooking local food to excursions abroad and all the EMMC-FIPDES students are encouraged to participate in these activities. In addition to informal activities described above, the entire curriculum of the EMMC-FIPDES is also designed to familiarise the students with local cultures.

To enable students to be acquainted with the national culture of the host country, the consortium encourage them to engage in local language studies, offer specific language courses and during the Introduction Module organises courses of gastronomy and culture from France, Italy and Ireland.

The following table sums up the facilities proposed by all partners. All services are more precisely detailed for all universities in Annexe A4-2.

Services	Paris	Napoli	Dublin	Lund
Accommodation facilities	Yes	Yes	Yes	Yes
Financial facilities	Yes	Yes	Yes	Yes
Coaching and counselling	Yes	Yes	Yes	Yes
Assistance for visa and administrative formalities	Yes	Yes	No*	Yes
Special services for students with family or disability	Yes	Yes	Yes	Yes
Buddy arrangement	Yes	no	No**	Yes
* Students will need to ensure that they have valid visas before coming into Ireland				
**Welcome meetings are organised and students meet with staff and students from DIT. This helps to integrate them and know who they can contact when seeking advice and help.				

A.4.4 Explain the nature and coverage of the **insurance scheme** to be put in place to cover the EM students against health issues and accidents.

Medical Insurance

All non-EU students are obliged to have private medical insurance cover under the terms of their student visa by The Department of Justice (www.justice.ie).

The International Student Office arranges private medical insurance cover for all registered non-EU students. The fee for the private medical insurance is included in the international non-EU student tuition fee.

Liability Insurance

Students are strongly recommended to take out insurance against liability, accidents and theft, which is compulsory for inscription at AgroParisTech. They will be assisted to contract the liability insurance and a list of possible insurance companies will be provided. All partners also have an insurance which covers students for all pedagogical activities, including theoretical and practical courses, project and training periods.

A.4.5 Describe the consortium **language policy**.

The working language will be English: EMMC-FIPDES courses and the introduction module are conducted in English, as will be the administration of the programme. All the professors, lecturers and supervisors speak English fluently. In France, however, some plenary lectures will be done in French in the case of common modules for national and EMM courses. In that case supports will be in English and a personal mentoring will be proposed to help students to fully benefit from course. For examination, project and research training period language, students can choose between English and local language.

Acquiring national language skills is a key for becoming better integrated and gain from the diversity of the cultures. Our experience is that best efficiency is achieved when the student can choose among diverse solutions, which are provided early and follow an intensive scheme.

Free national language courses are proposed as part of EMMC-FIPDES training. During the first semester in Paris a course of French language will validate 2 ECTS (French-speaking students could choose English of other European languages). In Napoli, intensive courses of Italian language are free for foreign students at the beginning of each semester. Students will however be encouraged to become familiar with the national language before their arrival, but this will not be compulsory. Intensive language training is also possible and is for example proposed by local administrations in France. The costs will be covered either by the host institution as part of their welcoming programme of foreign students, or by EMMC-FIPDes tuition fees.

The mobility period provides a real opportunity for the students to learn two different European languages.

A.4.6 Indicate the measures taken to facilitate **networking** among the Erasmus Mundus students and between these students and other students from the partner institutions.

The EMMC-FIPDES website facilitates networking among students. All practical information, important news and courses supports will be available online. The website will also include an Intranet space and a Facebook group with private access for EMMC students and teachers. This internet-based team working tool can contain local practical information, a students' forum of discussion, relevant papers and scientific information. The students can also exchange on their scientific work and also on practical aspects of their mobility.

During the Introduction Module (and then during the first semester in Paris), students live closely and are taught as a group with a limited number of participating students from outside. After this course, students are familiar in working as a group in a multi-national environment.

The participation in courses shared with the national masters will favour the networking with the students from partner institutions. Each EM student will also have local mentor student who can help him/her with administrative aspects and integration in the local life. Moreover, in each University an international student association exists which organise social event, trips and gala dinners with the national student associations.

Students are encouraged to register the good and bad practices of each university. A "tips book" will be written by all the students to help the next promotions in their integration. It will be revised each year integrating comments of the EM students.

A phone and address book of the EMMC-FIPDes will be created, enriched and revised each year. Ancients will thus be followed and will be able to help the novel EM students. Students will be strongly encouraged to take contact with EM Alumni association (<http://www.em-a.eu/>).

A.5 Quality assurance and evaluation (10 % of the max. score)

A.5.1 Describe the **internal evaluation** strategy and mechanisms in place.

The EMMC-FIPDes consortium and the organising universities will ensure the high quality of the Course, evaluating the outcomes annually in the Consortium Committee. The consortium set up a Quality Assurance plan which is running from the development phase of EMMC-FIPDes and will continue during the implementation phase of the programme by regular feedback of the participants (students, partners, consortium committee). The EMMC-FIPDes quality assurance plan, set up in accordance with the standards and guidelines from the European Association for Quality Assurance in Higher Education (EAQA), concerns both academic and administrative issues. It focuses on the following issues:

- **Quality of the programme:** coherence and holistic programme ensured by the initial design of the joint Master's
- **Quality of the supervision and of the career management**
- **Quality of the mobility organisation:** General guidance (during the introductory module) and individual counselling (by teachers and other students), used to provide information about mobility scheme
- **Quality of student administration from admission to degree awarding, including students' services** (Transparency and accessibility of information on the FIPDes website)
- **Quality of the financial management**

It includes feed-back on the courses, on the way EMMC-FIPDes students achieve their personal objectives and on the overall project.

The evaluation will be managed by the consortium committee, the advisory board and the students. The Advisory Board (see A.3.1) will advise the EMMC-FIPDes Consortium Committee on the set-up of the FIPDes M.Sc Course and the relevance of the professional practice. This Advisory Board will meet yearly during the introduction module in August.

The students will also take part in the evaluation of the programme by filling questionnaires at the end of each module. AgroParisTech already use in line courses evaluation. The AgroParisTech system will be used by UNINA, DIT, and LUND which will standardize the results of this evaluation of courses by the students. The results will be presented to the Consortium Committee and used in the mid term peer review (see A.5.2).

A.5.2 Describe the **external quality assurance** envisaged.

This joint quality assessment plan is completed by the national evaluation mechanisms of each of the partners. Each of the 4 universities has its own quality assurance system according to its national rules. In most cases, this system involves a site visit by a peer review commission.

As an example, brief details of recurrent procedures for national diploma validation are outlined below:

- In **Ireland**, DIT MSc degree in Culinary Innovation and Food Product Development. The National Qualifications Authority of Ireland (NQAI) established under the provisions of the Qualifications (Education & Training) Act 1999 has, as required by the Act, approved the Institute's quality assurance procedures and has instituted this review of their effectiveness. Each programme conducted within the Institute is subject to periodic review, normally on a five-year cycle, or more frequently as required by the Academic Quality Assurance Committee, Faculty Board or Course Committee. Such reviews are carried out by Panels of external and internal peers. The Masters programme was successfully re-validated in April 2009.

- In **France**, an external evaluation of teaching quality, the level of module contents, and the international links of AgroParisTech is undertaken every four years by the AERES, the National Agency for the Assessment of Research and High Education. The master of Life Science and Technologies has been successfully re-validated in June 2009 (Arreté du 9 juin 2009).

- In **Italy**, courses at UNINA are monitored annually by the University Committee of Auditors. An annual external national evaluation of Italian universities is carried out by CENSIS (Centre for Social Studies and Policies). Moreover, the bachelor degree in Food Technology at UNINA is the only Italian one in obtaining the Quality Certification from the CRUI (Italian Rector Committee). The factors that are taken into account in this evaluation are scientific and teaching productivity, quality of teaching, quality of research, evaluation of professors' excellence, and number of international exchange projects.

- In **Sweden**, LUND courses are annually monitored through the Course Evaluation program (CEQ). The entire master programs of Swedish universities are evaluated on an audit basis, where the Swedish governmental agency (högskoleverket) makes audits.

An external quality assessment will be organized in the form of an international peer review consisting of experts (scientists and industry) in the field of Food Innovation and Product Design. The peer review will be organized twice: at mid term and at the end of the programme. Recommendations of the peer review panel will be implemented via the usual feed-back mechanisms.

The yearly introduction module will be used to discuss and evaluate the research work and the training of the young researchers with the invited representatives of industry.

A questionnaire will be developed to include evaluation of courses, projects and administration. It will be distributed to industrial partners involved in projects but also to ex- EMMC-FIPDes students. Universities and administrative people will also receive questionnaires.

This external quality assessment will audit the 4 following criteria of the Master's programme:

- Financial, logistic and equipments;
- Quality and capacity of management by the institutions;
- Quality of teaching and learning outcomes;
- Good practices and integration aspects by the members of the consortium.