UNIVERSITAT POLITÈCNICA DE CATALUNYA
BARCELONATECH
Facultat d'Informàtica de Barcelona

SELF-ASSESSMENT REPORT FOR DEGREE PROGRAMME ACCREDITATION:

- Grau en Enginyeria Informàtica (GEI)
- Màster universitari en Enginyeria Informàtica (MEI)
- Master's degree in Innovation and Research in Informatics (MIRI)
- Master's degree in Artificial Intelligence (MAI)

Universitat Politècnica de Catalunya

Facultat d'Informàtica de Barcelona (FIB)

Barcelona, 15/09/2016

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Introduction

This document describes the Self-Assessment Report (SAR) for the accreditation of four Informatics degree progammes at the Barcelona School in Informatics (in Catalan Facultat d´Informàtica de Barcelona, FIB) at the UPC-BarcelonaTech (Universitat Politècnica de Catalunya). UPC is a public university in Spain dedicated to higher education and research, specialised in the fields of engineering, architecture and science**.**

Two agencies are involved in the accreditation process. AQU Catalunya (*Agència per a la Qualitat del sistema Universitari a Catalunya*) and ASIIN (*Akkreditierungsagentur für Studiengänge der Ingenieurwissenschaften, der Informatik, der Naturwissenschaften und der Mathematic)*. FIB is applying both to AQU and ASIIN (through the AQU-ASIIN partnership), in addition FIB is also applying to the Euro-Inf quality label, which is awarded to degree programmes at Bachelor and Master level that comply with the "Euro-Inf Framework Standards and Accreditation Criteria". EQANIE (European Quality Assurance Network for Informatics Education, which ASIIN is a member of) is the body responsible for this seal.

Specifically FIB applies to the accreditation with four degrees:

Acronym	Degree Title	Teaching Language	Accreditation
GEI	Bachelor Degree in Informatics Engineering *(Grau en Enginyeria Informàtica,* in Catalan*)*	Catalan/Spanish/ some taught in English	AQU/ASIIN + Euro-Inf
MEI	Master in Informatics Engineering (*Màster en Enginyeria Informàtica,* in Catalan)	Catalan/Spanish/ some taught in English	AQU/ASIIN + Euro-Inf
MIRI	Master in Innovation and Research in Informatics	English	AQU/ASIIN + Euro-Inf
MAI	Master in Artificial Intelligence	English	AQU/ASIIN

Please note that MAI is an inter-university programme including UPC, UB (*Universitat de Barcelona*) and URV (*Universitat Rovira i Virgili*) offering a state-of-the-art education in the field of Artificial Intelligence. Arguably such field is playing a key role in today's IT. So FIB applies with the MAI academic programme for an internationalisation mention under AQU Catalunya.

***Facultat d´Informàtica de Barcelona* (FIB)**

FIB is a pioneering school in university-level informatics in Spain and has been spearheading Catalonia's progress in the field since 1977. FIB mission is to contribute to society graduating top-quality professionals who will be required by organizations that seek to innovate and make progress. It is located on the UPC's North Campus, which has the greatest concentration of research and innovation in IT in southern Europe and forms part of the Barcelona Knowledge Campus, an international campus of excellence (see BKC).

FIB's mission is built around three main pillars, *(i)* the carefully designed degree programmes, *(ii)* internationalisation and *(iii)* academic excellence. In what follows we summarise each of these pillars:

Academic Programme

In Spain, the Ministry of Education by means of the European Higher Education Area (in Spanish *Marco Español de Cualificación para la Educación Superior*) defines the educational objectives of the computer science degrees. Such objectives or competences are a set of specific knowledge, skills (intellectual, practical, social, etc.), attitudes and values that enable individuals to carry out tasks and solve problems in the field of Informatics. In this context, the ministry provides a list of compulsory competences that the FIB's degree must met. In order to design top-notch degrees, FIB appointed a committee to carefully review such list and expand and enhance it. For this the committee engaged and interviewed the relevant stakeholders, this included the graduates (through the alumni association), informatics professional association and technology sponsors. After a meticulous and systematic analysis of the obtained data, the committee designed a list of competences (including the ones stated by the ministry) that would enable bachelor and master graduates to achieve outstanding performance in the professional

and research areas. The list of competences includes technical and non-technical ones. Next table summarises FIB competences related to EQANIE and ASIIN competences:

FIB Competences	EQANIE Competences	ASIIN Competences
Technical competences (domain-specific or specialist competences)	Basis, Analysis. Design, Implementation, Technology, Methodology	Specialist competences
Generic or transversals competences 9 UPC generic competences 2 FIB generic competences	Other professional competences	Social competences

With the list of competences, knowledge and educational objectives the FIB governance designed in 2009 the degree programmes. Each degree programme has its own specific governing body that monitors, among other things, the competences' deployment published in the subject teaching guides and competencial maps at the FIB webside. Chapter 3 describes in detail the list of competences and the assignment to subjects.
FIB degrees have shown outstanding results and as a consequence, FIB graduates are highly demanded both by the industry and public institutions. The companies are competing for FIB's graduates by offering paid internships for senior students, in the 2014/2015 academic year the companies offered 419 paid internships. In addition, FIB's degree programmes have a high reputation among academics, as a result the competences and degree structures are used as examples, discussed in several academic forums and adapted to other schools.

Internationalisation

Internationalisation is one of the main pillars of the FIB degrees and the school is globally recognised for the excellent design of its curricula. As a result FIB is part of the CLUSTER and CINDA networks that include participants from European and Latin-American countries. On top of that, FIB has agreements with 150 partner universities, covering the globe and with contacts with all the relevant IT regions (see Partner universities map).

This strong internationalisation of the school results in a high number of student exchanges. On the one hand, many local students carry an international academic stay at one of the partner universities (please note that outgoing figure is highly dependent on the available public funding). On the other hand, and as a solid proof of FIB's international reputation, our school is visited yearly by over a hundred of foreign students that come to study computer sciences related subjects. This brings a new rich dimension to the FIB studies, since local and foreign students interact resulting in a very valuable inter-cultural exchange. UPC indicators about the number of incoming and outgoing students at FIB are:

	Incoming	Outgoing
2012/13	103	103
2013/14	84	49
2014/15	106	35
2015/16	80 (only first semester)	68

Academic Excellence

FIB's degree programmes and research activities (carried by FIB's faculty) are well recognised by international rankings (chapter 3 describes and links them). As such, FIB is –according to several rankings- the top computer science school in Spain, furthermore UPC a relevant position in Europe and the world:

QS World University Ranking by Faculty (Engineering and Technology)	FIB ranks 1st in Spain and 82nd in the world
QS World University Ranking by Faculty (Computer Sciences and Information Systems)	FIB 1st in Spain and 51-100 in the world
Academic Ranking of World Universities (ARWU-Shanghai Ranking) (Engineering, Technology and Computer Science)	UPC ranks the second in Spain and 101-150 in the world

Beyond academic rankings, FIB also shows a leading position in rankings created by companies. Such rankings typically evaluate different aspects of the academic programme and focus on the real-world proficiency of FIB's graduates when working in the industry, as such they consider both technical and non-technical skills:

Ranking ISSUE (U-Ranking, Fundación BBVA)	UPC 2nd in Productivity, 2nd in Research and 1st in Innovation and Technological Development
Ranking University-Enterprise (*Fundación Everis*)	FIB ranks first in the field of Informatics and ICT

Document Structure

The remainder of this document is structured as follows. Chapter 1 and 2 describe relevant information about FIB and the self-assessment report development. Chapter 3 provides the required evidences –as documents and pointers- to fulfill the requirements of the accreditation. Finally Chapter 4 describes the Continuous Improvement Process while Chapter 5 lists the evidences.

The standards and guidelines for the criteria and requirements of programme assessment, in chapter 3, are the 6 AQU standards. AQU defines 6 standards for the criteria and requirements of programme assessment (2014, "Guide to the accreditation of recognised first and second cycle degree programmes"). EQANIE defines 5 guidelines for the criteria and requirements of programme assessment ("Euro-Inf Framework Standards and Accreditation Criteria", the 2011 version is used, but the new one published, 2015, will be related). The connection between the two definitions is summarized in two tables:
- The table on the left shows Chapter 3 sections (mainly the six AQU standards), and for each one the related EQANIE guidelines (or guidelines sections).
- The table on the right shows EQANIE guidelines, and for each one the related AQU standard (or chapter 3 section).

Standard AQU (S1,S2,S3,S4,S5,S6)	**Guidelines Euro-Inf (G1,G2,G3,G4,G5)**
Chapter 3. Standard 1 (S1)	G1 (1.1,1.2,1.3)
Chapter 3. Standard 2 (S2)	G1 (1.2)
Chapter 3. Standard 3 (S3)	G5 (5.1,5.2)
Chapter 3. Standard 4 (S4)	G3 (3.1,3.2)
Chapter 3. Standard 5 (S5)	G3 (3.2)
Chapter 3. Standard 6 (S6)	G2 (2.1,2.2, 2.3), G4 (4.1,4.2)
Chapter 3. Euro-Inf label (EI)	G3 (3.3, 3.4)

Guidelines Euro-Inf	**Standard AQU**
G1. Needs, Objectives and Outcomes	S1, S2
G2. Educational Process	S6 (6.1,6.2)
G3. Resources and Partnerships	S4, S5, EI
G4. Assessment of Educational Process	S6 (6.3,6.4)
G5. Management System	S3

The preparation of this Self-Assessment Report has been in charge of a specific internal assessment committee: the Internal Evaluation Committee (in Catalan, CAI, *Comitè d'Avaluació Interna*).

1. The Barcelona School of Informatics (FIB)

Formal data

Higher Education Institution **School**	UPC-Universitat Politècnica de Catalunya (Technical University of Catalonia) FIB-Facultat d'Informàtica de Barcelona (Barcelona School of Informatics)
Web address	http://www.fib.upc.edu/en.html
Quality Assurance System (QAS)	http://www.fib.upc.edu/en/centre/qualitat.html
SAR managers **SAR team**	Núria Castell (dean) Roser Rius (vice-dean of quality) CAI (Internal Assessment Committee)
Contact	degana@fib.upc.edu , 93 4017111 vd.qualitat@fib.upc.edu, 93 4017111

Degree programmes to accreditate					
Name of the programme	**RUCT code**	**Crèdits ECTS**	**Verification date**	**Accreditation year**	**Academic coordination/ Programme degreee manager**
Grau en Enginyeria Informàtica (GEI)	GRAU00000407	240	29/07/2010	2016	GEI committee / Vice-dean head of studies
Màster universitari en Enginyeria Informàtica (MEI)	DGU000001058	90	19/09/2012	2016	MEI committee / Vice-dean of Postgraduate Sudies
Master's degree in Innovation and Research in Informatics (MIRI)	DGU000001097	120	28/12/2012	2016	MIRI committee / Vice-dean of Postgraduate Studies
Master's degree in Artificial Intelligence (MAI)	DGU000001164	90	28/12/2012	2016	MAI committee / Vice-dean of Postgraduate Studies

Relevant information of FIB

FIB, since the academic year 1977-78, has been the teaching institution of UPC in charge of the higher education in the fields of Computer Science, Computer Engineering and other related domains. The FIB offers four degree programmes with completely adapted curricula to the European Higher Education Area (EHEA) and innovate educational methodologies: a Bachelor degree in Informatics Engineering (GEI), and three masters (MEI, MIRI and MAI). The FIB also offers the opportunity to enrol in other official masters (FIB degree programmes), and courses in the Masters started in 2006 and three other degrees in Informatics Engineering that follow the 2003 curricula that are actually phasing out.

FIB's teaching and research activity is recognised repeatedly in the most well-known rankings all around the world (evidence [96]). Focusing in the thematic rankings, which can show better the influence of FIB in the marks obtained, UPC appears in a leading position in Spain, and a quite strong position also in Europe and the World, in the Academic Ranking of World Universities (ARWU–Shanghai Ranking) in the field of Engineering, Technology and Computer Science (one of the two first in Spain, 101-150 in the world); in the QS World University Rankings by Faculty, both in Engineering and Technology (1st in Spain, 82nd in the world) and in Computer Science and Information Systems (1st in Spain, 51-100 in the world).

In addition to these rankings, we are also positively evaluated in a couple more rankings published recently and with a different approach. On one hand, the Ranking ISSUE (U-Ranking, Fundación BBVA) orders the Spanish universities under different scopes, ranking the UPC 2nd in Productivity, 2nd in Research and 1st in Innovation and Technological Development. On the other hand, there is the 1st Ranking University-Enterprise (*Fundación Everis*): UPC appears 1st in the field of Informatics and ICT (being the 61% of graduate students considered in that category Informatics Engineers).

The FIB institutional website (evidence [417]) is the main website to interface with all the relevant stakeholders (staff, alumni, current and prospective students, potential employers, and informatics societies). The website provides information about the School, the first cycle degree programme (Bachelor degree in informatics engineering, GEI, evidence [418]), and the second cycle degree programmes (evidence [419]). The school introduction summarises the main features: the school in figures (over 2000 students, over 300 graduates in the last full-year course, over 9000 graduates since 1979), the school's history with some relevant years with a brief overview (in Catalan), and employment opportunities in several sectors and professional fields.

A new Bachelor degree in Informatics Engineering (GEI) was introduced during the 2010-2011 academic year, based on the curricula designed in 2003 and in accordance with the rules stated by EHEA. In addition, three official masters where introduced during the 2012-2013 academic year: MEI (Master in Informatics Engineering), MIRI (Master in Innovation and Research in Informatics) and MAI (Master in Artificial Intelligence). The masters – except MEI – are taught entirely in English. The new curricula implies new teaching criteria: ECTS (European Credit Transfer System), focus on student participation, innovation in teaching methods, and use of modern educational technologies.

The informatics degrees are officially verified by the Spanish government and then authorised by the Catalan government before they can be deployed. Since the adaptation of the Spanish university system to the EHEA framework, the structure of university studies in Spain distinguishes Bachelor degrees (4 years of study, 240 ECTS, usually) and Master degrees (1-2 years, 60-120 ECTS).

The Spanish Government establishes specific rules for degrees on the so-called 'regulated professions'. Such professions (e.g. Medicine, Architecture or Engineering) have specific laws clearly defining its competences. Anticipating that Computer Engineers in Spain may also constitute a regulated profession in the near future, the Spanish Government has also defined recommendations for the development of curricula for Bachelor and Masters informatics

degrees. The interested reader can find more information at: Spanish university system, reference documentation, and Spanish Royal Decree.

Bachelor and Masters are regulated by the Spanish Government Royal Decree RD 1393/2007 (and by the RD 861/2010 modification). GEI and MEI were designed according with such laws, while MIRI and MAI are thematic masters.
GEI verification was on July 30th 2010, and MEI verification was on September 19th 2012. MIRI and MAI received the verification on December 28th 2012.

FIB governance (evidence [417], see School governance) is carried out by the dean as the highest executive authority, the dean's team, and the governing bodies: the School Board and The Standing Committee that performs executive functions, and specific bodies.

Each degree programme (the new ones at EHEA) has its own specific governing body:
- CAGEI as the GEI Academic Committee
- CAMEI as the MEI Academic Committee
- CAMIRI as the MIRI Academic Committee
- CAIMAI as the MAI Academic Committee

Other specific bodies are: a general Academic Assessment Committee, three Curricular Committees, a Quality Committee, and actually during the accreditation process an Internal Evaluation Committee. All these governance bodies are elected or appointed within staff (academic and support staff) and students. FIB Quality Assurance System (QAS) involves all this governance structure.

Academic and support staff related to FIB (evidence [417], see School) involve management support staff (see Structure Areas), technical support staff (see inLab FIB), and academic staff in charge of teaching subjects. Management support staff engage 21 employees, and technical support staff engage 22 employees of the inLab team (which also involve additional academic and technical staff, and students for the innovation, research and technology transfer activities). Academic staff are requested to several departments (8 of the UPC, see Departments), of whom 223 people collaborated last academic year with teaching assignment mainly at FIB (chapter 4.1 details their category distributions). The total number of students last academic year was 1784. It includes the 4 new EHEA degrees submitted for accreditation, Erasmus-Mundus degree programmes (see Masters), previous informatics degrees with students but no new entrance, and previous degree masters (see Previous Masters).

The FIB community copes with recent decreasing resources despite their coinciding with the deployment of new EHEA degrees, which implies important teaching demands related to the rising number of students and number of ECTS. Last recession years and investments reductions are a worrying situation, mainly for the decreasing in the academic and support staff. The evolution of academic staff is: from 244 in 2012-13 to 223 in 2014-15 (evidence [95] and also more detailed in chapter 4.1). Evidence [95] also shows number of students evolution (enroled and graduated):

	Students	GEI graduates	MEI graduates	MIRI graduates	MAI graduates
2012-13	1467	27	-	-	-
2013-14	1665	118	4	7	14
2014-15	1784	163	9	26	15

The total number of students is rising according the new degree offer in the EHEA framework. GEI was introduced during the 2010-2011 academic year with students enroled at first and second programme year (first to fourth semester subjects). First GEI graduates were in 2012-13. First graduates for new EHEA Masters' degrees were in 2013-14.

2. Self-Assessment Report development

Self-Assessment Report team

Person	Position	
Núria Castell	Dean	Academic staff
René Alquézar	Vice-dean/head of studies	Academic staff
Gemma Sesé	Vice-dean/head of studies for the Initial Phase	Academic staff
Ramon Canal	Vice-dean of Postgraduate Studies	Academic staff
Roser Rius	Vice-dean of Quality	Academic staff
Ramon Nonell	Academic secretary	Academic staff
Carme Murillo	Head of Management and Support Services	Support staff
José Manuel Diéguez	Head of the Decision-Making Support Area	Support staff
Albert Obiols	Support Staff for Quality	Support staff
Antonio Cañabate	Instructor	Academic staff
Àngela Nebot	Instructor	Academic staff
Joan Antoni Pastor	Instructor	Academic staff
Carlos García Calatrava	GEI student	Student
Mario Cavero	GEI student	Student
Sergio Moyano Díaz	MEI student	Student
Alberto Gutiérrez Torre	MIRI student	Student
Armand Vilalta	MAI student	Student
Elisabeth Margarit	Professional and member of FIB Quality Committee	Professional

Self-Assessment Report development process

On May the 7th, the UPC Vice-Rector for Studies and Planning presented the UPC degree programmes subject to an ex-post assessment process (accreditation) for the 2015/16 academic year. Degree programmes are subject to an ex-ante assessment process (known as validation) and then an ex-post assessment process (accreditation) that takes place either four years later (in the case of Master's degrees) or six years later (for Bachelor degrees). FIB must assess a Bachelor's degree (GEI) and three Masters (MEI, MIRI and MAI).

In June, FIB set up the school's team that is responsible for producing the self-assessment report. The team, listed above, consists of representatives from the school's various

stakeholders, such as academic/programme coordinators, teaching staff, support staff, students and one professional. This team is the internal assessment committee (CAI, in Catalan, *Comitè d'Avaluació Interna*). CAI has a similar composition to another main FIB monitoring committee, the Quality Committee. Some of the CAI members are in both committees, so CAI started functioning as another step in the monitoring process. CAI was divided into three sub-committees that are responsible for three different fields: Bachelor matters, Master matters and global FIB matters. The first task was to systematically collect data, analyse it, and discuss the data and figures in order to meet the accreditation standards.

On June the 23rd, the UPC Vice-Rector for Studies and Planning met with the FIB Dean's team to decide on the possibility of an international label, the Euro-Inf label for GEI, MEI and MIRI.

On September the 7th, the UPC-Gpaq staff presented the self-assessment report guide. Throughout September, October and November, CAI sub-committees met weekly, either face-to-face or via e-mail.
The whole CAI committee met on September the 16th, on October the 7th and 28th, and finally on November the 25th, to draw up and review the report.

FIB made the self-assessment report publicly available from November 11th to November 20th.
And, finally, the self-assessment report was validated by the School Board on December the 2nd. Evidence [616] has the School Board certificate of SAR approval (*Certificació* from the 02/12/2015 minute).

Self-Assessment Report evaluation

All CAI members contributed to developing the self-assessment report with highly satisfactory compliance. The whole FIB community also contributed to meeting the needs of this task.

Before the CAI was set up, the Accreditation process was presented and explained to the Standard Committee and to the Quality Committee.

During the SAR development, we call on the community for references in order to collect specific data. For example, e-mails from overall 20 groups of academic staff about contributions in new teaching methods.

We received feedback the self-assessment report publicly period from November 11th to November 20th (three e-mails).

3. Assessment standards and criteria

STANDARD 1. PROGRAMME QUALITY. NEEDS, OBJECTIVES AND OUTCOMES

Introduction: design competences and stakeholders' needs

The programme's design (competence profile and structure of the curriculum) meets the requirements of the discipline and complies with the required level of study according to the qualification framework in the EHEA in Spain (in Spanish *Marco Español de Cualificación para la Educación Superior*, MECES). UPC has two itineraries for the GEI degree programme and they should be homogenized in particular for the final degree project (see 494 in the Improvement proposals list at page 50).

The educational objectives are outlined by the description of the learning outcomes that graduates require for practising their profession. Competences are these learning outcomes. They are a combination of knowledge, skills (intellectual, practical, social, etc.), attitudes and values that enable individuals to carry out tasks and solve problems in specific academic, professional or social settings. Under the new EHEA framework, graduates should have achieved:

- Technical competences (domain-specific or specialist competences) that are closely linked to the demands of the professional areas associated with their degree. For EQANIE, they are Basis, Analysis, Design, Implementation, Technology and Methodology. And for ASIIN they are Specialist competences.
  FIB defined these competences according the Spanish Government recommendations for the development of curricula for Bachelor and Masters informatics degrees.
- Generic competences (other professional competences, social or soft competences) to connect with society. For EQANIE they are Other professional competences, and for ASIIN Social competences. UPC approved an agreement on 7 generic or transversal competences to be common for all UPC degrees: Entrepreneurship and Innovation, Sustainability and Social Compromise, Third Language, Effective Oral and Written Communication, Team Work, Solvent Use of the Information Resources, and Autonomous Learning. Furthermore, FIB defined 2 others: Appropriate Attitude towards Work and Reasoning.

The design of the four degree programmes were based on all these competences, which should be acquired across all disciplines and specialisations. In 2007, FIB defined a competences committee (evidence [102] at *GEI Protocol verificat pg 51*) that was in charge of working out a competences list to be fulfilled by graduates. This committee took into account stakeholders' needs by considering related organizations' points of view: graduates (FibAlumni), informatics professional association (COEINF), and informatics technologies festivity sponsors (Festibity). Furthermore, some surveys were conducted among 353 professionals, 79 academic staff and 150 senior students (some results at JENUI 2009), which provided relevant information. A competences list was delivered in 2009 to the FIB governance bodies as an initial document for the particular committee that was going to design new degrees in accordance with EHEA. Each programme website provides information about each degree programme competences.

GEI competences: consists of the 9 generic competences (G1 to G9) and 8 common technical competences (CT1 to CT8). GEI also has technical competences for each specialisation.

Master's generic competences consists of 6 of the UPC generic ones (except Third Language), the 2 FIB generic competences, and 2 more: Applying Informatics Techniques to New Application Areas, and Integrate, Describe and Explain Applicable Techniques. Master's technical competences are:
MEI competences: 10 general, 4 specific groups, and 1 for Final Master Thesis (CTFM)
MIRI competences: 2 general, 4 specific groups, and 1 for Final Master Thesis (CTFM)
MAI competences: 4 general, 8 specific groups, and 1 for Final Master Thesis (CTFM)

Each programme website also provides information about each degree programme's competences, as related to subjects:
GEI competences for degree subject at evidence [418]
MEI competences for degree subject at evidence [419]
MIRI competences for degree subject at evidence [419]
MAI competences for degree subject at evidence [419]

A common procedure to develop domain-specific competences consists of setting different competence levels (based on Bloom's taxonomy) and then assigning them to the corresponding subjects or courses in the programme.

To develop generic competences into a comprehensive integrated experience, we propose a definition of each competence in terms of dimensions (or competence aspects), which are further defined according to third-level objectives. These objectives are integrated into the subjects that are considered suitable for this purpose. Thus one subject may integrate dimensions belonging to different competences at different levels, which contributes to an integral educational experience. The proposed definition is available at the website (see Competencial maps) with some related articles.

Evidence [106] Employers's survey describes employers' perceptions of the employability and skills of recent graduates in Catalonia, 2014 survey. The skills that employers considered to be the most important and that they are more satisfied with, involve both technical and, mainly, generic competences. In a recent workshop, on November the 6th (see competences assessment workshop), a presentation underlined how FIB conducts competence assessment (here the presentation, in Spanish).

Introduction: competences equivalence to Euro-Inf learning outcomes

The previously designed competences at FIB are consistent with the programme's competence profile and learning outcomes for informatics programmes, which were formulated by EQANIE in "Euro-Inf Framework Standards and Accreditation Criteria" (the 2011 version is used, but the new one published, 2015, will be related).

Programme learning outcomes can be described as quality standards for knowledge, skills and competences, which graduates of an accredited course should have achieved as the educational basis for practicing their profession or for post-graduate studies. A wide range of degree programmes fall within the general area of informatics, but all their graduates should be aware of the wider spectrum of informatics.

We show in the next three tables the equivalence between EQANIE Euro-Inf learning outcomes and competences in the GEI, MEI and MIRI degree programmes.
We have considered the EQANIE 2011 version; but taking into account the EQANIE 2015 version, we want to point out a FIB result according to the new category: economic, legal, social, ethical and environmental context. A recent 2015 ranking, 1st Ranking University-Enterprise (see *Fundación Everis*), focused especially on the competences and skills (including the generic competences) acquired by the graduates during their studies. It has been elaborated by a massive survey to Spanish companies, which have hired new graduate students over the last 5 years. In this ranking, the UPC appears 1st in the field of Informatics and ICT (with 61% of graduate students being considered in that category of Informatics Engineers); and underscores their honesty, ethical commitment, interpersonal and communication skills, and their ability to work in intercultural and multidisciplinary environments.

Table that links EQANIE Euro-Inf learning outcomes with GEI competences:

Euro-Inf Learning Outcomes - Bachelor's Programme in Informatics Engineering

Euro-Inf Learning Outcomes																	
Underlying Conceptual Basis for informatics	**Common technical competences**								Generic competences								
Graduates having completed a First Cycle degree should have demonstrated the following:	CT1	CT2	CT3	CT4	CT5	CT6	CT7	CT8	G1	G2	G3	G4	G5	G6	G7	G8	G9
knowledge and understanding of the key aspects and concepts of their informatics discipline, including some at the forefront of that discipline	X																
an awareness of the wider spectrum of informatics disciplines																X	
Analysis, Design and Implementation	**Common technical competences**								Generic competences								
Graduates having completed a First Cycle degree should have demonstrated the following:	CT1	CT2	CT3	CT4	CT5	CT6	CT7	CT8	G1	G2	G3	G4	G5	G6	G7	G8	G9
insight into possible application fields of informatics																X	
an ability to become familiar with new informatics applications																X	
appreciation of the need for deep domain knowledge in certain application areas; appreciation of the extent of this in at least one situation			X														
formalisation and specification of real-world problems whose solution involves the use of informatics		X															
understanding complexity of informatics problems and the feasibility of their solution				X													
knowledge of appropriate solution patterns																	X
an ability to select and use relevant analytic and modelling methods																	X
an ability to describe a solution at an abstract level				X													
an ability to apply their knowledge and understanding to the design of hardware and/or software which meets specified requirements				X													
knowledge of all phases of the software life cycle for building new, and maintaining and commissioning existing, software systems		X															
selection and usage of appropriate process models and programming environments for projects involving traditional applications as well as emerging application areas					X		X										
modelling and design of human-computer interaction														X			
creation and thorough testing of software systems								X									
familiarity with existing software and application systems and use of their elements								X									
Technological and Methodological Skills	**Common technical competences**								Generic competences								
Graduates having completed a First Cycle degree should have demonstrated the following:	CT1	CT2	CT3	CT4	CT5	CT6	CT7	CT8	G1	G2	G3	G4	G5	G6	G7	G8	G9
an ability to combine theory and practice to complete informatics tasks				X													
an ability to undertake literature searches, and to use data bases and other sources of information							X										
the ability to design and conduct appropriate practical investigations (e.g. of system performance), to interpret data and draw conclusions														X			
awareness of relevant state-of-the-art technologies and their application				X													
recognition of the need for, and engagement in life-long learning															X		
Other Professional Competences	**Common technical competences**								Generic competences								
Graduates having completed a First Cycle degree should have demonstrated the following:	CT1	CT2	CT3	CT4	CT5	CT6	CT7	CT8	G1	G2	G3	G4	G5	G6	G7	G8	G9
an ability to complete tasks from different application areas while taking into account the existing technical, economical and social context								X		X							
consideration of the economic, social, ethical and legal conditions expected in informatics practice								X									
awareness of project management and business practices, such as risk and change management, and understanding of their limitations									X								
ablity to function effectively as an individual and as a member of a team												X	X				
an ability to organise their own work independently															X		
an ability to formulate an acceptable problem solution using informatics in a cost-effective and time-efficient way													X				
essential knowledge of estimating and measuring cost and productivity													X				
ability to communicate effectively with colleagues, (potential) users and the general public about substantive issues and problems related to their chosen specialisation; communication competence to present ideas and suggested solutions convincingly in written and verbal form											X	X					

Table that links EQANIE Euro-Inf learning outcomes with MEI competences:

Euro-Inf Learning Outcomes - Master in Informatics Engineering

Euro-Inf Learning Outcomes																									
Underlying Conceptual Basis for informatics																									
Graduates having completed a First Cycle degree should have demonstrated the following:	CG1	CG2	CG3	CG4	CG5	CG6	CG7	CG8	CG9	CG10	CDG1	CDG2	CDG3	CTF1-12	CTEM	CB6	CB7	CB8	CB9	CTR1	CTR2	CTR3	CTR4	CTR5	CTR6
profound knowledge and understanding of the principles of informatics	X																								
either a deepened knowledge of a chosen specialisation or broadened knowledge of informatics in general															X										
critical awareness of the forefront of their specialisation																	X								
Analysis, Design and Implementation																									
Graduates having completed a First Cycle degree should have demonstrated the following:																									
specification and completion of informatics tasks that are complex, incompletely defined or unfamiliar																X									
formulation and solution of problems also in new and emerging areas of their discipline																	X								
application of the state of the art or innovative methods in problem solving, possibly involving use of other disciplines								X																	
ability to think creatively to develop new and original approaches and methods																				X					
Technological and Methodological Skills																									
Graduates having completed a First Cycle degree should have demonstrated the following:																									
integration of knowledge from different disciplines, and handling complexity			X					X			X														
comprehensive understanding of applicable techniques and methods for a particular specialisation, and of their limits														X											X
awareness of the limits of today's knowledge and the practical application of the state-of-the art technology																								X	
knowledge and understanding of informatics to create information models, complex systems and processes				X																					
ability to contribute to the further development of informatics														X	X				X						
Other Professional Competences																									
Graduates having completed a First Cycle degree should have demonstrated the following:																									
independent work in their professional field	X					X	X												X	X			X	X	
managerial abilities and effective functioning as leader of a team that may be composed of different disciplines and levels																	X					X			
effective work and communication also in international contexts																		X							
systematic approach to project management and business practices, such as risk and change management		X	X		X				X	X		X	X								X				

Table that links EQANIE Euro-Inf learning outcomes with MIRI competences:

Euro-Inf Learning Outcomes - Master in Innovation and Research in Informatics

Euro-Inf Learning Outcomes																	
Underlying Conceptual Basis for informatics	**Technical competences**							Generic competences									
Graduates having completed a First Cycle degree should have demonstrated the following:	CG1	CG2	CEC1	CEC2	CEC3	CGCB00 CEE1-5	CTFM	CB6	CB7	CB8	CB9	CTR1	CTR2	CTR3	CTR4	CTR5	CTR6
profound knowledge and understanding of the principles of informatics	X																
either a deepened knowledge of a chosen specialisation or broadened knowledge of informatics in general							X										
critical awareness of the forefront of their specialisation						X			X								
Analysis, Design and Implementation	**Technical competences**							Generic competences									
Graduates having completed a First Cycle degree should have demonstrated the following:	CG1	CG2	CEC1	CEC2	CEC3	CGCB00 CEE1-5	CTFM	CB6	CB7	CB8	CB9	CTR1	CTR2	CTR3	CTR4	CTR5	CTR6
specification and completion of informatics tasks that are complex, incompletely defined or unfamiliar								X									
formulation and solution of problems also in new and emerging areas of their discipline									X								
application of the state of the art or innovative methods in problem solving, possibly involving use of other disciplines					X												
ability to think creatively to develop new and original approaches and methods												X					
Technological and Methodological Skills	**Technical competences**							Generic competences									
Graduates having completed a First Cycle degree should have demonstrated the following:	CG1	CG2	CEC1	CEC2	CEC3	CGCB00 CEE1-5	CTFM	CB6	CB7	CB8	CB9	CTR1	CTR2	CTR3	CTR4	CTR5	CTR6
integration of knowledge from different disciplines, and handling complexity							X										
comprehensive understanding of applicable techniques and methods for a particular specialisation, and of their limits			X														X
awareness of the limits of today's knowledge and the practical application of the state-of-the art technology						X										X	
knowledge and understanding of informatics to create information models, complex systems and processes				X											x		
ability to contribute to the further development of informatics					X						X						
Other Professional Competences	**Technical competences**							Generic competences									
Graduates having completed a First Cycle degree should have demonstrated the following:	CG1	CG2	CEC1	CEC2	CEC3	CGCB00 CEE1-5	CTFM	CB6	CB7	CB8	CB9	CTR1	CTR2	CTR3	CTR4	CTR5	CTR6
independent work in their professional field	X								X			X				X	
managerial abilities and effective functioning as leader of a team that may be composed of different disciplines and levels	X													X			
effective work and communication also in international contexts										X							
systematic approach to project management and business practices, such as risk and change management	X	X											X				

1.1 Student admission

Supply and demand in the computer science labour market shows that informatics degree graduates have good prospects and placements (at Universities and employment in Catalonia 2014 we can see that graduates were mainly in work three years after completing their university studies, specially in Engineering. But when considering the number of places offered and comparing them with incoming student figures, we can see that new strategies for attracting students are possible, primarily for those with better chances of graduating. For example, we can raise the cut-off grade, the female percentage in GEI, or increase the number of final enrolments in the master's. As a consequence, instead of past improvement plans for incoming students, we propose an improvement plan (see 447 in the Improvement proposals list at page 50) to boost the knowledge and social recognition of the studies and the profession of computer engineering. It aims to promote and collaborate on initiatives which aim to promote the role of information technology in today's society, and the knowledge of techniques and tools that allow building computer systems. It seeks to tighten and expand contact with secondary schools to promote a better understanding of the profession and the scope of studies in computer science engineering, and to take the opportunity to especially influence the female group.

This plan is added to a consolidated effort, I love bits, which is a newsletter for students, teachers and secondary schools. During the current year, we will launch the 8th electronic edition with 1.600 emails.

Bachelor degree (GEI)

The indicators corresponding to the last six cohorts of incoming students (evidence [97]) show a positive trend both in the first-option demand (422, 484, 508, 534, 574 and 617) and in the cut-off mark (6.04, 6.17, 6.67, 6.81, 6.94 and 7.81). Taking into account that the number of places available is 400, these figures are an example of the improved academic level of new students and of the effectiveness of promotional activities (secondary school activities, in Catalan see *Activitats Secundària*: open days, teaching fairs, Ramon Llull Day, etc.). Unfortunately, increasing the percentage of incoming women (9%, 6%, 9%, 7%, 8% and 9%) seems to go beyond the scope of this program, as it would involve several external issues, such as the treatment of technology subjects at the early stages of secondary school (see 447 in the Improvement proposals list at page 50). UPC makes attracting female talent one of its priority next years, and FIB has an agent (the head of management and support) taking part in the extension of an UPC working group (see Woman 2.0 UPC).

Most incoming students have completed secondary studies within the science or the technology specialities. Therefore, they are appropriately qualified to begin the degree. Nevertheless, a number of students have completed higher level vocational training course studies (in Catalan, *Cicles Formatius de Grau Superor*) (17%, 21%, 10% 14%, 14% and 7%). These students have some shortcomings in the theoretical subjects. This is why they are offered an introductory support course (see Intensive course at evidence [418]) prior to the start of the studies, which focuses on the study of foundations in physics and mathematics. Even though the percentage of these students has decreased, we think that it is motivated by the high demand of the sector, which we also believe that is somewhat cyclical. Results of the introductory support course are quite rellevant. Success rate of theoretical subjects raise from 4% to 10% for the students enroled in the intensive courses.

In order to get the best incoming students, it is necessary to take into account the results from other global indicators, which have been obtained essentially from surveys addressed to new incoming students. According to these survey results (prepared with a FIB Business Intelligence tool that collects FIB data), 77.5% of new students reported having known about the degree from the centre's website, and 54.7% intend to continue completing a master's degree. Both indicators were taken into account in the strategies for attracting students for the degree (GEI) and the master's courses.

Results of the student satisfaction surveys (*indicadors de satisfacció,* at evidence [97]) show an upward progression in the score given to both subjects and academic staff; and around 90% of

graduates would choose the same degree. Moreover, surveys of graduates show that the profile of graduates is what employers require, as 95.3% of graduates work. Of these, 74.1% do so in jobs that require the qualifications that they have (2014 data). This represents a significant increase when compared to the 63.6% figure for 2008.

Masters' degrees (MEI, MIRI, MAI)

Admission to the master's is performed twice per academic course. Undergraduate students can finish their studies in either February or June/July; so we offer them the possibility to continue in any of our master's programs with no delay. The target group of students in our master's comes from Informatics Engineering degrees at FIB or in other schools. Students coming from degrees in telecommunications, electronics, industrial engineering or similar are assigned extra preparatory courses before they can begin the master's program if their background is deemed unsatisfactory. The number of credits used in these preparatory courses is between 6 ECTS and 30 ECTS. The admission is denied if more than 30 ECTS are necessary, because it's not possible to equalise competences.

We have the final new enroled or registered students from evidences [98],[99] and [100] . And we have also information on the students who previously tried to enrol in these master's degrees (applicants). We can summarise in the following tables the maximum number of students that can be registered (capacity), the number of students that apply (applicants), the number of students admitted (admitted) and the number of students that eventually register and start the master's (registered) for each master's (MEI, MIRI and MAI):

MEI	**2012-2013**		**2013-2014**		**2014-2015**	
	Sept.	Feb.	Sept.	Feb.	Sept.	Feb.
Capacity	40		40		40	
Applicants	45	5	26	6	44	6
Admitted	36	2	23	3	36	5
Registered	20	0	15	2	21	4

MIRI	**2012-2013**		**2013-2014**		**2014-2015**	
	Sept.	Feb.	Sept.	Feb.	Sept.	Feb.
Capacity	80		80		80	
Applicants	36	11	45	20	55	15
Admitted	33	9	44	17	52	13
Registered	25	7	28	13	35	10

MAI	**2012-2013**		**2013-2014**		**2014-2015**	
	Sept.	Feb.	Sept.	Feb.	Sept.	Feb.
Capacity	40		40		40	
Applicants	44	3	31	-	51	10
Admitted	43	3	30	-	51	10
Registered	18	3	16	-	19	2

Registration figures are below capacity. We have been working in two directions: the first one is to increase the number of admitted students that end up registering. The other direction is in efforts to increase the number of applicants. Both efforts are related to the global FIB improvement plan explained earlier in 1.1 (see 447 in the Improvement proposals list at page 50).
Apart from that, given the change in the undergraduate program, we still do not have a regular egression of students that are potential candidates for following up a master's. Actually, our figures show that just 20% of the new master's students in 2014/2015 came from the Bachelor in Informatics Engineering at FIB (when entering GEI, 54.7% intend to continue completing a

Master's degree). While this means that we are able to attract students from other universities and countries (40% of the new students in 2014/2015 are international), it means we still have room for improvement with the local ones. In this sense, the improvement plan for the dual master's programme wants to engage GEI graduates by combining work with a master's degree (see 485 in the Improvement proposals list at page 50).

1.2 Educational objectives. Teaching coordination mechanisms

Agents involved in the coordination processes ensure that the objectives of the courses are feasible, implementable and consistent with the assigned competences. The bachelor's degree implies a larger coordination structure than the master's, because it involves more students, subjects and academic staff. For the moment, the master's can be organised in an easier way, but it can also be broadened when necessary.

All degree programmes have an Academic committee responsible for the final decisions that will be delivered to the Standing Committee for effective execution. For example, every semester subjects' teaching guides are checked.

In addition, generic competences or professional skills deserve specific coordination due to their transverse nature. This is called transverse coordination, and there has been appointed a coordinator for each one.

Bachelor degree (GEI)

Several coordination mechanisms have been devised for the Bachelor Degree in Informatics Engineering (GEI), which are clearly described on the website (Degree coordination in Degree subject curriculum at evidence [418]). The existence of these mechanisms is one of the strengths of the program. They have facilitated both the allocation of different levels of competence in all subjects, accessible to everyone, and the monitoring of their degree of achievement throughout the program (Competences for degree subjects in Degree subject curriculum at evidence [418])

The academic staff responsible for the subjects constitutes the first level of coordination mechanisms, and this is usually a senior or expert professor. These are proposed by the department in charge of imparting a given subject, and it must be ratified by the school. They should be partners among the school and the instructors who teach the course, and they must coordinate the relationships with students. The rules governing the functions were approved by the Standing Committee of the School Board on 05/20/15 (see the corresponding Standing Committee minutes).

The common compulsory subjects of the GEI are divided into five areas, each of which has a coordinator. The coordinator's partners for each of these areas are those responsible for the subject, and their basic function is the vertical coordination of objectives, contents and activities of the subjects involved. Each speciality of the GEI has also been appointed a coordinator, who is also in charge of the vertical coordination with the common block.

To assure the uniform distribution of the subject load that a student may register for throughout the semester, there also exists what is known as horizontal coordination. The horizontal coordination corresponding to the first two semesters (early stage) is the responsibility of the Head of Studies for the Initial Phase (early stage), and the horizontal coordination of the other common compulsory subjects is performed by the Head of Studies. The speciality coordinator takes responsibility for the horizontal coordination of each of the five specialties. All these coordination may use student surveys about subject workload: "ECTS project" in the yearly Academic Report (in Catalan, see Annual reports).

All coordinators meet at least once a year with both Heads of studies. The ultimate responsibility for the coordination of studies lies with the Head of Studies.
CAGEI (GEI Academic Committee) is the specific committee relevant to GEI teaching coordination with regular meetings (evidence [420] at "*Grups*" CAGEI with restricted access).

This academic committee and some (three) curricular assessment committee deliver agreements to the executive Standing Committee. Evidence [417], at School Governance Specific committee shows the current composition and regulation for each committee. CAGEI minutes display decision-making process adapting regulations to academic needs (evaluation regulations, academic staff assignment to specific tasks like first course subject responsibility).

Masters' degrees (MEI, MIRI, MAI)

All master's have the same coordination structure. The coordination is implemented in three different levels: at the programme year level, at the area level (i.e. group of courses in the same area) and global. For each master, we give the names of all these coordinators and their functions. The area coordinator is responsible for distributing the learning objectives and competences among the courses in the area. The global coordination ensures the coordination among areas and semesters. This global coordination is one of the tasks of the Master's Academic Committee, and there is one for each Master's: CAMEI (MEI Academic Committee), CAMIRI (MIRI Academic Committee) and CAIMAI (MAI Academic Committee). Academic committees regularly meet and deliver agreements to the executive Standing Committee (evidence [420] has restricted access at "Grups" CAMEI, CAMIRI or CAIMAI).

Each Master's Academic Committee is composed of several professors (according to the departments involved in the master's programme), the school management (Dean, Vice-Dean) and school staff (Head of the Decision Support Office). The current composition and regulation for each Specific committee is shown at School Governance Specific Committees (evidence [417]). The duties of the Academic Committee include the coordination of areas and the supervision of the education objectives/competences/contents of the programme year subjects. No subject can change any of the above without the explicit permission of the area coordinator and this committee.

MAI is an inter-university programme including UPC, UB (*Universitat de Barcelona*) and URV (*Universitat Rovira i Virgili*). Therefore, CAIMAI also has the goal to coordinate the three university teams.

1.3 Verification and Monitoring processes

Verification and Monitoring processes are complied with in the correct way and this has a positive impact on the programmes outcomes improvements. After a global analysis of the curriculum was performed, several areas requiring changes were identified, and the Monitoring process (and Modification process (substantial or not) or "*reverificació"*) was launched, in accordance with the classification provided by the paper "Processes for communication and / or evaluation of changes in the university degrees of Bachelor and Master "(12/04/4, AQU).
And some new improvement plans will imply new modifications that would led to reverification.

Bachelor degree (GEI)

After some suggested changes during the initial verification process, an official degree amendment was requested, which, on 12.19.2013, was favorably evaluated by AQU (it was related to three improvement plans proposed in 2012).

Master	Source of change	Suggested change	Status
GEI	Verification	More definition about planning competences along subjects	Done and publicly available
GEI	Monitoring Report with modifications (reverification)	Adaption to the rules for recognition of credits obtained in non-university higher education centers	Favorably evaluated and included in re-verification
GEI	Monitoring Report with modifications (reverification)	Equivalence between specialities and mentions	Favorably evaluated and included in re-verification
GEI	Monitoring Report with modifications (reverification)	Distribution of competences amongst subjects	Favorably evaluated and included in re-verification

A new improvement plan for GEI will imply modifications or reverification: double specialisation (see 483 in the Improvement proposals list at page 50). See Chapter 4 for more details.

Masters' degrees (MEI, MIRI, MAI)

Masters received the verification in 2012 and it involved several suggested changes to consider at verification. And the Monitoring process, in case of MIRI, involved a favorably evaluated new specialisation introduction.

Master	Source of change	Suggested change	Status
MEI	Verification	More definition of a mentoring/tutorship program	Done
MEI	Verification	Include more metrics of success in the results report	Done
MEI	Verification	Clearly differentiate between part-time and full-time students and their restrictions on the number of credits they can register	Done

Master	Source of change	Suggested change	Status
MIRI	Verification	Include action verbs in the descriptions of the competences	Done
MIRI	Verification	Make more emphasis on entrepreneurship	Done
MIRI	Verification	More information on support and orientation of new students	Done
MIRI	Verification	More definition of a mentoring/tutorship program	Done
MIRI	Verification	Introduce actions to increase the number of graduated students	Done
MIRI	Monitoring Report with modifications (reverification)	Include new specialisations in the master	Favorably evaluated and included in re-verification

Master	Source of change	Suggested change	Status
MAI	Verification	Include action verbs in the descriptions of the competences	Done
MAI	Verification	Make more emphasis on entrepreneurship	Done
MAI	Verification	More information on support and orientation of new students	Done
MAI	Verification	More definition of a mentoring/tutorship program	Done
MAI	Verification	Introduce actions to increase the number of graduated students	Done
MAI	Verification	Include more metrics of success in the results report	Done

New improvement plans for MEI, MIRI and MAI will imply modifications or reverification (see Chapter 4 for more details):
- New double degree agreements (see 484 in the Improvement proposals list at page 50)
- Implementation of a dual master programme (see 485 in the Improvement proposals list at page 50)
- Renaming subjects (see 486 in the Improvement proposals list at page 50)
- New intensifications (see 491 in the Improvement proposals list at page 50)
- Review structure and contents of existing intensifications (see 492 in the Improvement proposals list at page 50)
- Change mandatory nature of a subject (see 493 in the Improvement proposals list at page 50)

STANDARD 2. RELEVANCE OF THE PUBLIC INFORMATION. TRANSPARENCY AND PUBLICITY

The FIB website (evidence [417]) provides public information, complete and published entirely in Catalan, and mostly in English and Spanish. This website has been constantly updated, but now it is going to be adapted (see 478 in the Improvement proposals list at page 50) to the latest technological developments. In addition, the aesthetic aspects and coherence between different language versions will be reviewed so that those tools of communication will be more attractive to the targeted stakeholders.

2.1 Reliable, complete and up to date programme's information

Relevant information related to FIB degree programmes is complete and up to date at the website (evidence [417]).

For enroled students in each degree programme, there exists a specific website: evidence [418] for GEI and evidence [419] for Masters. It contains the information on the specific organisation (syllabus, final or thesis project, exams, timetables, calendar). The information is updated before the start of the academic year, and much of the teaching information is updated each semester. Maintenance and information issues are treated daily.

Enroled students also have access to different intranets for some reserved information. One allows them to access their registration and produce official certificates (we call that "e-secretary"), and it is handled by UPC. Another two intranets offer them access to the virtual classrooms: one is hosted by UPC (see Atenea), and the other by the FIB (see *Racó*, and *Racó* mobile). They incorporate various educational tools adapted to the implementation of degrees within the EHEA (warnings, notes, calendars, and assignments).

2.2 Relevant and readily accessible information to all stakeholders

The FIB website (evidence [417]) ensures easy and universal access to all relevant stakeholders. Therefore transparency and publicity are assured.

For prospective and new GEI students, we have the I love bits website, and a new one for Masters that contains the information, structure and organization of EHEA masters. We have put a special effort into generating a clear outline of the target audience, the goals of the program, its structure and distribution of the subjects in semesters. It also includes the employment opportunities, admission process, funding possibilities, information on living in Barcelona, international rankings and opportunities.

The process of programme monitoring and, where applicable, accreditation of degree programmes for the UPC is available at the UPC website (VSMA**,** which in Catalan means, *Verificació Seguiment Modificació Acreditació* or verification, monitoring, modification and accreditation of degree programmes). The FIB outcomes of programme monitoring (evidence [101]) and also verification (evidence [102]) are available there as well as at FIB QAS (evidence [417] at the School Quality system).

A personalized contact point has been in operation since 2011 for communicating technical issues. It is expected that in a short time it will offer full service to all areas. This is a tool for optimizing all processes involved in responding to queries and/or incidents sent through electronic media such as email, online forms, etc., which are notably increasing. This personalized contact point for telematics queries aims to optimize resources, to increase the response capacity of the organization, and to prevent the following encountered inconveniences: queries and/or repeated incidents addressed to different areas, allocation of resources concurrently caused by repeating the same query to different areas, and no user information about the status of their query while it is resolved.

2.3 The Quality Assurance System public information

According to the commitment of transparency required for university institutions in the framework of the EHEA, universities must have policies and systems of internal quality assurance. FIB's QAS (Quality Assurance System) is formally established and publish (evidence [417] at the School Quality system).

A mandatory yearly management report of the Dean's team is presented to the School Board with the information, the organisation and decided measures of the corresponding semesters. QAS processes are evaluated according the last academic year, and new proposals are presented. Special mention must be made of the annual accountability that you can find in the Academic Report. FIB presents annual Academic Reports to the School Board and they are public at the website (in Catalan, see Annual reports).

STANDARD 3. EFFICACY OF THE MANAGEMENT SYSTEM. THE QUALITY ASSURANCE SYSTEM

FIB has among its goals the quality assurance of its academic programs. In that sense, the adaptation of its degrees to the EHEA was considered by the school as an opportunity to design and implement an internal Quality Assurance System (QAS). This quality assurance system has been defined in the framework of the Program AUDIT in accordance with the guidelines established by AQU, and it is in compliance with the principles of legality, publicity, transparency and participation.

FIB received a positive global evaluation of its internal QAS designed in the framework of the Program AUDIT, as has been attested in the certificate issued by AQU in June 2009. From then until now QAS has evolved due to the needs of the implementation of the new EHEA degree programmes and according to several rules and initiatives in the quality field at UPC and AQU. FIB has a specific vice-dean for quality purposes since 2011, then FIB took part in the design of an experimental application for quality management at UPC, and the recent years is involved in different UPC groups in order to study the standardization and simplification of processes. This Self-Assessment Report and the current accreditation process offers a global point of view in the degree programmes development that lead to a turning point in accordance with a recent AQU guide (Guide to certification to IQAs implementation) that establishes six dimensions to evaluate internal QAS.

Implementation of QAS relies on FIB's organization and structure. The entire governance structure performs the FIB Quality Assurance System. These organization and decision-making processes are adequate for enabling the programme outcomes to be accomplished. FIB processes are repeated regularly, mostly every academic year (some of them every semester and some longer than yearly). The Dean's team and governing bodies are in charge of beginning, monitoring, assessing and supplying documentary evidence for all the processes. FIB staff carries out the different tasks, and minutes of the bodies' meetings become known to the target groups. All these operating procedures bring about transparency to all these guided processes with continuous improvement plans. QAS-designed processes evolve continuously as the different governing bodies adapt to new conditions. This evolution makes FIB's typical work flexible and versatile. An improvement action is proposed in order to review the processes and to establish some kind of protocol for standardising rules and regulations that deal with formal communication and the exchange of information between governing bodies and target groups (see 479 in the Improvement proposals list at page 50). The goal is also that all the reviewed processes fit the six dimensions of a recent guide (Guide to certification to IQAs implementation) in order to be assessed.

FIB governance (at School Governance in evidence [417]) is carried out by the Dean (as the highest executive authority), the dean's team, and the governing bodies: the School Board and the Standing Committee that performs executive functions. Decision-making processes based on continuous improvement processes rely on the School Board (minimum two yearly meetings) and the Standing Committee, which is the executive body that meets bimonthly. Regulations and minutes of these meetings are public (in Catalan, School Board minutes and Standing Committee minutes), and they are evidences of a plan-do-check-act periodic cycle between the Dean's team and, mainly, the Standing Committee.

Standard Committee meets usually bimonthly and gather information at "*Grups*" *Comissió Permanent (CP)*. Evidence [420] has restricted access to that group and shows how Standing Committee members access this information concerning each meeting. Minutes and outcomes from the meeting are published at the website (in Catalan, *Actes de les reunions i documents generats (CP)*). School Board meets usually twice a year and gather information at "*Grups*" *Junta de Facultat (JF*). Evidence [420] has restricted access to that group and shows how School Board members access this information concerning each meeting. Minutes and outcomes from the meeting are published at the website (in Catalan, *Actes de les reunions i documents generats (JF)*).

The School Board is the collegiate body with the highest authority over internal regulations as well as over the control and expression of the position and aspirations of the school. All the processes to assure educational programme quality are at the end its responsibility. But processes are assigned mainly to dean's team and the Standard Committee, but also to other specific bodies (specific degree programme committees, a general Academic Committee, three Curricular Committees, a Quality Committee, and during the accreditation process there is currently an Internal Assessment Committee). The degree programme committees are primarily important: each degree programme has its own specific body (CAGEI, CAMEI, CAMIRI and CAIMAI). All over this document, in the different standards chapters, main processes are described and related to the responsible body.

All FIB members (students and teaching and support staff) could run in the election of the School Board and the Standing Committee by following the procedures in the Regulations of the FIB. Then, all the other committee members are elected or named. The regulations and up-to-date composition of all these committees are public (evidence [417] at School Governance Management).

The QAS website (QAS) describes all the organization. An organigram shows the governance structure (governing and specific bodies), and a process map classify the main process. The QAS interrelates and schedules periodically the processes to the governance structure and the Faculty structural areas in a plan-do-check-act cycle. Documentation associated includes indicators, reports, and a special kind of report as a quality handbook describing and interrelating all the QAS component.

3.1 The QAS and degree programmes design

Degree programmes design is one of the main processes. This process implementation relies on the School Board. Therefore, this is the QAS body in charge of programme design approval. This process could be scheduled in one of the two ordinary yearly meetings of the School Board or in an extraordinary one.

The degree programme design in the EHEA framework led to an evolution of the process. FIB defined ad-hoc committees in order to take into account stakeholders' needs previously to degree design approval.

3.2 The QAS and degree programmes results

Collecting and analysing outcomes is another main process designed in the EHEA framework. The Standing Committee is the responsible executive body that meets bimonthly. Two of these meetings along the year, usually in the spring and autumn seasons, are called to coincide with the two corresponding School Board meetings. In these meetings, a compilation is presented regarding information, outcomes (particularly learning outcomes), and stakeholder satisfaction. This process implementation relies on a Business Intelligence tool that collects FIB data, and led to an evolution of the process defining specific committees for each degree programme.

The Standing Committee feeds on specific bodies. Each degree programme has its own specific body: CAGEI as the GEI Academic Committee, CAMEI as the MEI Academic Committee, CAMIRI as the MIRI Academic Committee, and CAIMAI as the MAI Academic Committee. The information for each specific committee meeting is gathered at "*Grups*" *CAGEI, CAMEI, CAMIRI* and *CAIMAI*. Evidence [420] has restricted access to that groups and shows how specific committee members access the information and the minutes concerning each meeting.

3.3 The QAS and degree programmes monitoring

All the governance bodies are concerned with monitoring processes, but the Quality Committee (CQ in Catalan, *Comissió de Qualitat*) specifically ensures continuous enhancement of programme quality through the analysis of objective data. The educational programme quality assurance process implies monitoring. Monitoring reports (with modifications, reverification, if necessary) are approved by the Standing Committee and the Quality Committee either.

Quality Committee composition includes personnel not related to FIB: two UPC personnel not assigned to FIB, and two non UPC personnel who come from firms related to informatics. Monitoring process consists of two ordinary meetings per year that gather information at "*Grups*" *Comissió de Qualitat* (CQUAL). Evidence [420] has restricted access to that group and shows how Quality Committee members access the information and the minutes concerning each meeting. New improvement proposals are delivered to the standing committee when necessary.

3.4 The QAS and degree programmes accreditation

All the governance bodies are concerned with the accreditation process, but an ad-hoc committee was specifically created for this purpose: CAI (in Catalan, *Comitè d'Avaluació Interna*. The educational programme quality assurance process implies for each degree programme an ex-post assessment process (accreditation). Applying for accreditation implies that some documentation has to be submitted prior to the visit by an external panel. This process implementation relies on the ad-hoc committee.

CAI is an internal assessment committee responsible for the Self-Assessment Report. The accreditation process consists of an ad-hoc process every 4 or 6 years that gather information at "*Grups*" *Comitè d'Avaluació Interna de la FIB* (CAI). Evidence [420] has restricted access to that group and shows how CAI members access the information and the minutes concerning each meeting.

3.5 The QAS and continuous improvement processes

All the governance bodies are concerned with the continuous improvement processes, but dean team specifically is in charge of them by means of the specific programme bodies (CAGEI, CAMEI, CAMIRI and CAIMAI). Evidence [420] has restricted access to committee groups and shows how all governing body members access the information and the minutes concerning each meeting. In addition minutes and outcomes from the collegiate body meetings are published at the website. And finally the annual Monitoring Report (the mandatory yearly monitoring report with improvement plans presented to the Standard Committee) and annual Academic Report (the mandatory yearly management report of the Dean's team presented to the School Board) are also published at the website (in Catalan, see Annual reports).

The Dean's periodic election is the naturally regulated and periodic process for re-examining needs, objectives, outcomes, educational process, resources, partnerships, and the management system. The final mandatory management report of the Dean's team (and also the yearly management reports) displays the decision-making history.

In order to complete this final Dean's periodic election report (as part of a global internal review process including the management system) a particular QAS review process could be defined. So an improvement action is proposed: see 495 in the Improvement proposals list at page 50. The goal is to define a periodic and systematic process to review the whole QAS from an internal and also external point of view if possible. In this sense the aim is to take advantage of the Quality Committee composition that includes personnel not related to FIB: two UPC personnel not assigned to FIB, and two non UPC personnel who come from firms related to informatics. The Quality Committee usually meets twice a year and is completely renewed each two years. So the periodicity for a deep QAS review could be every two years at least.

STANDARD 4. RESOURCES: ACADEMIC AND SUPPORT STAFF SUITABILITY

4.1 Staff composition, competence and qualification

Academic and support staff (management and technical) deal with the accomplishment of programme outcomes.

Management support staff is structured in areas (see Structure Areas) in order to respond effectively to user requests and to meet high standards in the mission of FIB. A summary of their last academic year tasks is published in the annual report “Annual report FIB 2014-2015” pages 127-130 (in Catalan, see Annual reports).

Technical support staff (inLab FIB formerly LCFIB, in Catalan *Laboratori de Càlcul de la FIB*) provides the wide variety of informatics services needed. These services include administrative procedures, TIC support tools, and campus services. Most of them are governed by rules of use that must be considered and respected (Code of conduct and Rules). InLab is an innovation and research lab based in FIB, and it integrates the technical staff with academic personnel and students in order to provide solutions to a wide range of demands that involve several areas of expertise. It has more than three decades of experience in developing applications using the latest ICT technologies, collaborating in different research and innovation projects and creating customized solutions for public administrations, industry, large companies and SMEs using agile methodologies.

FIB requests academic staff in charge of teaching subjects in eight UPC departments (here the departments list). Their professional experience and investigation is carried out by means of different groups of research and investigation bodies (published at the website at Research and innovation). Academic staff with teaching assignment mainly at FIB last academic year and their category distributions is shown in the next tables:

		Catedràtics universitat	*Titulars universitat*	*Catedràtics escoles universitàries*	*Titulars escoles universitàries*	*Agregat*	*Col·laborador Permanent*	*Ajudant*	*Associat*	*Altres*	*TOTAL*
PDI en 1ª assignació	2014-2015	29	95	3	9	43	14	-	26	4	223

		Full professors	Associate professors	Assistant professors	Part-time academic staff	TOTAL
Academic staff with teaching assignment mainly at FIB	2014-2015	29	164	0	30	223

Professors with permanent positions in Spain can be employed by the national Spanish Government (civil servants) or by the regional government, and they correspond to Full professors, Associate professors, and Assistant professors.

Academic staff meet the qualification requirements for programme delivery, and they have sufficient and recognised experience in teaching, research and, where applicable, professional experience. Merit-based salary increases for teaching and research at public universities in Catalonia are regulated. These increases, or premiums, are an annual individual consolidated amount allotted by each university's board and are subject to a positive evaluation by AQU. Merits in research are evaluated according to six-year periods of research, while merits in teaching are evaluated according to five-year periods.

Evidences [425] [426] [427] [562] and [563] have restricted access and describe:
- Number of academic staff with teaching and research experience for each department and for each degree programme.

GEI: 241 academic staff (84% PhD), 770 merits in teaching positively evaluated, 371 merits in research positively evaluated.
MEI: 29 academic staff (93% PhD), 85 merits in teaching positively evaluated, 50 merits in research positively evaluated.
MIRI: 81 academic staff 96% PhD), 267 merits in teaching positively evaluated, 178 merits in research positively evaluated.
MAI-UPC: 19 academic staff (100% PhD), 67 merits in teaching positively evaluated, 40 merits in research positively evaluated.
MAI-UB: 12 academic staff (100% PhD), 22 merits in teaching positively evaluated, 21 merits in research positively evaluated.
MAI-URV: 7 academic staff (100% PhD), 40 merits in teaching positively evaluated, 17 merits in research positively evaluated.

- Number of academic staff in four categories A B C or D in both teaching and research (UPC defined the four categories from A, the best, to D according to several indicators): 79.1% of FIB academic staff have A or B categories in both teaching or research (39.3% have A in teaching and A in research).
- Academic staff involved in projects with companies: 70
- Academic staff involved in projects: in 2015, 748 projects (103 of them European projects); 207 academic staff involved
- Academic staff research activities: 39% supervise GEI degree final projects, 18% supervise Master's final theses, 41% supervise PhD theses, 60% publish in JCR_SJR.

Master's academic staff have higher mean number of merits in research that are positively evaluated and higher mean number of projects:

	Global	MEI	MIRI	MAI
Mean number of merits in research	1,7	1,7	2,20	2,1
Mean number of projects	0,85	0,83	0,95	0,97

Academic staff involved in each subject is published in the annual report "Annual report FIB 2014-2015" pages 99-114 (in Catalan, see Annual reports), highlighting the responsible instructor (this is usually a senior or expert professor mainly in first course subjects).

The results for UPC student satisfaction surveys show good assessment for instructor and subject satisfaction. On a grading scale from 1 to 5 (with 5 meaning "totally agree"), the FIB instructors mean is 4.07 (UPC overall mean is 3.85) and FIB subjects mean is 3.58 (UPC overall mean is 3.48). This recent results was presented in the last mandatory management report of the Dean's team to the School Board. Evidence [420] has restricted access to "*Grups*" *Junta de Facultat (JF*) where the report was published.

Evidence [182] is the official public website for scientific production of UPC researchers.

4.2 Staff deployed effectively

There is sufficient teaching staff in the school, and staff assignments are adequate for them to carry out their duties and attend to the students. As we pointed out before, the FIB community copes with the decreasing resources despite their coinciding with the deployment of new EHEA degrees, which implies important teaching demands.

The results for UPC student satisfaction surveys show good assessment for instructors. On a grading scale from 1 to 5 (with 5 meaning "totally agree"), the FIB instructors mean is 4.25 (UPC overall mean is 4.03). This recent results was presented in the last mandatory management report of the Dean's team to the School Board. Evidence [420] has restricted access to "*Grups*" *Junta de Facultat (JF*) where the report was published.

During the past three years, the evolution of academic staff distribution in categories is: from 31 to 29 full professors, from 101 to 98 associate professors, from 62 to 66 assistant professors, and from 50 to 30 part-time academic staff:

		Catedràtics universitat	Titulars universitat	Catedràtics escoles universitàries	Titulars escoles universitàries	Agregat	Col·laborador Permanent	Ajudant	Associat	Altres	TOTAL
PDI en 1ª assignació	2014-2015	29	95	3	9	43	14	-	26	4	223
	2013-2014	30	98	3	9	37	15	3	26	8	229
	2012-2013	31	98	3	9	29	20	4	39	11	244

4.3 Staff opportunities for continuous improvement

The institution offers support and opportunities for enhancing teaching quality. Evidence [103] is the ICE (in Catalan, *Institut de Ciències de l'Educació*) website, where the UPC formation planning for academic staff can be found with a wide variety of lectures offered.

FIB has a high participation of teaching staff in several lectures (evidence [158], with restricted access), mostly since the new EHEA degrees were deployed and mainly devoted to innovation and new methodologies.

FIB also has academic staff participating in research and projects on innovation in teaching methods, as well as the use of modern educational technologies in accordance with the EHEA framework. Evidence [420] has restricted access to "*Grups*" *CAE* where there is a classified list of contributions in teaching methods from overall 20 groups of academic staff.

STANDARD 5. RESOURCES: LEARNING ENVIRONMENT EFFICIENCY

FIB resources provide adequate support for the learning process, as shown in survey satisfaction for academic and support staff and students. Learning facilities and learning equipment are well assessed for all of them (*Indicadors de satisfacció* on evidence [95] for academic and support staff, and on [97] [98] [99] [100] for GEI, MEI, MIRI and MAI students, respectively). On a grading scale from 1 to 5 (with 5 meaning "totally agree"), the results show good assessment of academic staff (most question results ranged from 3.1 to 4.2) and also of support staff (most question results ranged from 3.2 to 4.1). Academic staff gives the worse score to students' dedication, and support staff gives the worse score to services coordination. Students have a high score for global satisfaction (GEI 3.8, MEI 3.7, MIRI 3.6 and MAI 3.5). In this case, a minimum score is indicated for MIRI and MAI students in relation to the website.

5.1 Adequacy of learning facilities in enabling accomplishment of the programme outcomes

Before enrolling in the FIB, academic support services involve:
- For prospective students, specific websites were developed (see I love bits and a see new master's website)
- For GEI admission, FIB receives an official list form the government. And for master's admission, the master's coordinator evaluates the curriculum and qualifications of each candidate during the admission process. He/she may assign specific extra preparatory courses if the CV of the applicant shows a lack of previous knowledge.
- The welcoming orientation event is the day of their first registration, and there is a special event where FIB's Dean and part of the Dean's team welcome the students. Apart from the welcome, we give them specific information on the usual administrative procedures and tutorship.

After having recently enroled in the FIB, academic support services involve:
- Tutorship. FIB offers a tutoring program that provides guidance to students. This action plan is based on mentoring given by an instructor. The tutorship is specifically performed in each degree: in the GEI by the FIB intranet *Racó* (see *Pla d'Acció tutorial,* in Catalan) and is voluntary, in the MEI by the master coordinator, in the MIRI by the specialisation coordinator together with the master coordinator, and in the MAI by the professors of the master's together with the master's coordinator.
Regarding GEI, tutorship processes are coordinated from the FIB intranet, *Racó*. Tutors have information on their *Racó* site about the students (registered subjects, timetable, e-mail addresses), as well as files that can be useful for preparing the tutorship meetings. In the past six cohorts, only interested students have asked for a tutor (70, 63, 78, 68, 37, 48). About 20 instructors have acted as tutors for these students.
Students gives similar score for tutorship satisfaction in all degree programmes (GEI 3.0, MEI 3.3, MIRI 3.8 and MAI 3.1).
- Student associations. FIB has a delegation of students (see DEFIB), which is responsible for resolving general and academic-related doubts that the students may have. FIB students will have access to a wide range of associative, cultural, sport and leisure opportunities (evidence [417] at University life Associations).
- Equal opportunities. FIB facilitates the stay in the college of all those who suffer disabilities and ensures their equality with other students. This is done through the UPC Office for Equal Opportunities (see *Igualtat*), which is responsible for giving advice and training both to impaired people and staff. Master's students with special needs are handled directly by the master's coordinator with the help of the university services responsible for attending to students with special needs.

Degree students can also receive personalized attention from some of the school Dean's team members (Vice Dean Head of Studies, Vice Dean Head of Studies of the Initial Phase and Vice Dean of Students). Interested students can visit them during the scheduled time, which is made available on the FIB website, or they can arrange a meeting to clarify doubts at other times by telephone or by email (see Telephones and timetables).

During the studies at FIB, several learning facilities are:
- Online teaching platforms. Basically, FIB uses Atenea (UPC moodle adaptation) and *Racó* as its own FIB intranet. The MAI degree also uses UB and URV intranets.
- Specific support tools. The school has also developed some specific tools for teaching. This is the case for Jutge.org (https://jutge.org/), LearnSQL (https://learnsql.fib.upc.edu/moodle/) and RACS platforms (https://racso.lsi.upc.edu/juez/). They are, respectively, automatic correction tools of computer programs, SQL statements and formal languages. Used in some subjects of programming and databases, they are not only limited to evaluating students' assessments but also for giving feedback and helping them to detect committed errors.
- The institutional repository (see Upcommons) which stores magazine articles, research reports, participation in conferences by UPC research staff members, final degree projects of UPC students, academic materials and past exams from UPC teaching staff.

Finally, just before graduating, some professional guidance is available at the website (evidence [417]):
- The educational cooperation agreement allows students to apply and complement the knowledge they acquired during the degree through internships with companies that collaborate with the FIB (evidence [417] at University-Enterprise placement). Students can also develop their Final Degree Project in that context.
- Business seminars. These short courses taught by industry and services professionals allow degree students to catch up on the latest ICT advancements. These courses take place once a year.
- Forum TIC. The yearly Forum of Information and Communication Technologies is an event organized by students of the FIB and ETSETB (Telecommunication Engineering School at UPC), where a number of information technology companies (including leading multinational corporations in the IT sector) make presentations, hold conferences and introduce students into the labour market through personal interviews and CV reviews.
- Jobs bank. The school has a jobs bank (evidence [417] at University-Enterprise job bank), which is updated on a daily basis and is widely used by the students. They can find there job offers and/or internships, along with their details (information such as the company name, the location of the job, timetable, requisites and contact information for interested people to apply). Any question regarding jobs/internships can be addressed to the External Projects and Relations Area (evidence [417] at University-Enterprise placement).

Students gives similar score for professional guidance satisfaction in all degree programmes (GEI 3.2, MEI 3.3, MIRI 3.4 and MAI 3.1). In addition a student satisfaction survey published in the annual report "Annual report FIB 2014-2015" pages 195-196 (in Catalan, see Annual reports) shows good assessment for business seminars and 96% answered they would recommend them.

And just graduated, the association "FIB Alumni" (and the UPC alumni, evidence [104]), offers professional orientation, seminars and meetings to keep in touch with FÏB when graduated.

5.2 Adequacy of learning equipment for enabling accomplishment of the programme outcomes

FIB offers various material resources that support students during their learning trajectory:
- Lecture rooms (small, medium-sized or high-capacity), which are equipped with a computer connected to the network, a projector and wireless coverage.
- Laboratories. Different types of labs can be distinguished: computer labs that are sufficient for most classes and teaching laboratories for subjects that require specific and/or more technical tools. Degree students have access to 21 computer labs, with a total of 373 computers (five rapid access points, 343 PCs and 30 iMacs). On-line requests for free labs are provided by the website. A detailed list of services (at evidence [417]) is provided by inLab (formerly known as *Laboratori de Càlcul de la FIB*, LCFIB). InLab is an innovation and research lab based in the FIB for providing a learning lab specialized in informatics engineering, for creating a professional environment focused on developing talent and training our students, and for developing multidisciplinary R+D projects.

The annual report “Annual report FIB 2014-2015” (in Catalan, see Annual reports) displays an extended description about activities, projects and resources at FIB computer labs (pages 140-167). Department labs (evidence [105] are also described in the “Annual report FIB 2014-2015” (pages 168-171).
- UPC library with group work and study rooms. Evidence [107] shows, on one hand, the use of on-site and on-line resources (increase in on-line resources and decrease in on-site resources except those for collective work); and, on the other hand, FIB students satisfaction survey shows a high score overall 4.0 for all items (on a grading scale from 1 to 5, with 5 meaning “totally agree”). FIB documents collection related to UPC library are described in the “Annual report FIB 2014-2015” (pages 172-174).

- Additional material: technological equipment loan (requested at inLab (FIB) or UPC library)

The satisfaction survey for academic staff students (*Indicadors de satisfacció* on evidence [95] and [97] [98] [99] [100] for GEI, MEI, MIRI and MAI students, respectively) shows the highest scores in equipments.

STANDARD 6. QUALITY AND ASSESSMENT OF THE EDUCATIONAL PROCESS

Planning, delivery and assessment are adequate for enabling achievement of the learning outcomes, and are consistent with the intended ones which correspond to the appropriate level for the programme in the EHEA at adequate rates. Bachelor degree (GEI) and Masters' degrees (MEI, MIRI and MAI) were designed in accordance with EHEA curricula which imply new teaching criteria: student participation, innovation in teaching methods, and use of modern educational technologies. For all four programmes, as an incentive for excellence, students' mobility is supported and promoted as well as student participation in educational activities related to university-business cooperation. The goal of these activities is to complete the training received by students at the university.

FIB students can take part in various mobility programmes (at Mobility in evidence [417]). Each one is based on a number of agreements with other universities and institutions in different countries. All these agreements allow the student to make a stay in a foreign university and attend lectures, do the final project/thesis or accomplish a double degree. The school is constantly working to secure more agreements in order to offer students a wider range of destinations to choose from. We want to highlight at evidence [417], Mobility programs, Double degree, and Internships and other activities abroad.

The framework for FIB student participation in educational activities related to university-business cooperation, is called educational cooperation agreements (Placements at University-Enterprise at evidence [417]). These kinds of activities are extracurricular for masters' degrees and for GEI, which is mandatorily associated with the accomplishment of the final degree project in a company.

The evaluation method of all the degree subjects is public in the teaching guide and accessible through the FIB web pages. According to the European Higher Education Area (EHEA) framework, a sufficient number of assessment activities of varied types are planned for each subject and they allow both the summative and the formative evaluation of the students. All the assessment activities are consistent with the specific goals and generic competences assigned to the subject in the curriculum, as is specified in detail in the teaching guides of the subjects. The evaluation method of each subject is reviewed each semester by the Degree Academic Committees at the request of the professor in charge of the subject, who proposes the required modifications for a better adaptation to the target learning outcomes.
The evaluation methods used include exams, assignments, lab sessions, projects, and presentations. The evaluation method is tailored to the course objectives and competences. Each Degree Academic Committee is responsible for checking the procedures so that each course does reliably and accurately evaluate the learning objectives and competences.

Bachelor's degree (GEI)

6.1 Planning and delivery adequacy to enable achievement of the programme outcomes

With regard to the structure and organisation of the GEI curriculum (degree subject curriculum at evidence [418]), the public information included has been complemented with tables relating competences and subjects, as well as competencial maps defining several aspects of the competences (dimensions) in terms of objectives at three levels. This information corresponds to the analysis of the coordination in the curriculum (indicated as an improvement proposal in the first monitoring report), specifically as it relates to the topic of coordinating of the generic competences and their progress throughout the subjects with the various dimensions of competence in the new model (at 3 levels each) .

The teaching methodology and activities of each subject are described in detail in the teaching guide (Syllabus at evidence [418]) and they are reviewed each semester by the CAGEI.

In the case of the bachelor's thesis (TFG in Catalan, Final degree project at evidence [418]), there exists an initial training module on project management (Thesis management course) which allows the student to establish precisely the goals and scope of his/her work, plan it and think about the technical competences that will be needed to carry it out. All of this is done under the guidance of his/her project supervisor and with the help of the project management professors. The Final degree projects are related to the specialisation that the student has chosen and must cover some of the technical competences of that specialisation, in addition to the generic ones. Assessment of cross-disciplinary competences is based on rubrics (see Criteria used in bachelor's thesis assessment rubrics).

The external professional practices are mandatorily associated with the accomplishment of the Final degree project in a company and share with it the same training activities (project management module), supervision and assessment. At information for students, they can find as well, the Educational Cooperation Agreement and the working plan documents.

6.2 Learning assessment adequacy to enable achievement of the programme outcomes

The evaluation method of all the degree subjects is public in the teaching guide and accessible through GEI website (Syllabus at evidence [418])

In the case of the Final degree project, the assessment is divided into three stages (initial, intermediate and final) where different actors participate (professor of the project management course, project supervisor and final evaluation committee). Both the technical and the generic competences are assessed, the latter by means of evaluation forms at the three stages, with a weighting of 60% and 40% respectively. All the information about the Final degree project and its evaluation is public and accessible (Final degree project at evidence [418], and Final degree project academic regulation).

GEI Degree final project during 2014-15 academic year were 144 and are published in the annual report Memoria_2014-2015 pages 228-235 (in Catalan, see Annual reports).

The external professional practices are mandatorily associated with the accomplishment of the Final degree project in a company and share with it exactly the same evaluation method.

Materials involved in the last evaluation of some students (academic year 2014-2015) have been collected for some selected subjects of the curriculum (evidence [420] at "Grups" CAE with restricted access):

- IC: Introduction to Computers (compulsory course in the initial phase, first year).
The teaching method for the subject is the Pygmalion method described by the Institute of Education Sciences of the UPC, summarised as 10 points (see Atenea for detailed information, as the teaching guide is merely a summary)

- IES: Introduction to Software Engineering (compulsory course in the second year). The subject is structured around theory and problem-solving classes. In the theory classes the lecturer will explain the main subject content. Lecturers typically use slides that students should obtain before class. In problem-solving classes, course content (whether presented in class or studied independently) will be studied by completing problems. This will sometimes require problems to be resolved (or at least attempted) before class, so that the best solutions can be collectively analysed and discussed in class. On other occasions, the problem will be both set and resolved in class.

- G: Graphics (compulsory course within the Computing speciality, third year). The teaching methodology is based on weekly theory classes (2h) and lab (2h). In the theory classes will introduce the concepts, equations, algorithms and techniques of the course contents, and exercises that help to assimilate the concepts and facilitate the development of practices that are performed in the lab sessions. The lab will consist of the teacher in introducing the scripts practices, structured sessions, and specific concepts required for their development. Students must complete the design and implementation of various applications related to the contents of the course. To facilitate their development, applications will be supplied skeletons will be partially programmed.

- CPD: Data-Processing Centers (optional complementary course in Computer Engineering and Information Technologies specialities, third/fourth year). Each week during the academic year there will be one class of theory and another one of laboratory 2 hours each. The theory class is presented by the teacher, including theoretical concepts, practical examples and treining exercises resolution. The laboratory classes will be discussion and elaboration of scenarios. Classes will be highly participatory, in which students will have assigned tasks before class (studying some kind of software, architectural solution, ...), so it must provide what is learned during discussions / brainstorming explaining things in class when necessary. The laboratory classes will be held in classrooms with whiteboard and projector, as well as a computer student in order to make presentations, test software or search for information. There are custom projects, in groups of up to 4 students (to be determined) that will develop a design of a data center with specific characteristics (constraints, objectives, resources available) for each different group. Part of the work will also do an audit of DPC designed by other groups. All the work done by each student will join the portfolio of the student, which is a tool for evaluating the course. In addition, depending on the availability of each course will be visits to DPCs real and / or lectures by experts.

Furthermore, we have also collected evidences (evidence [420] at “Grups” CAE with restricted access) of the materials involved in the evaluation of a sample of the Final degree project (TFG, in Catalan), particularly in the compulsory project management course (GEP, in Catalan) which is given at its initial stage.

6.3 Students' study progress rates adequacy

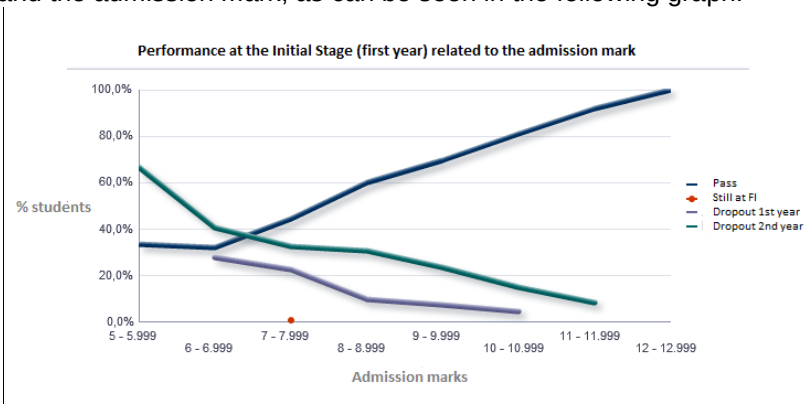
The performance of the students from the second year up to the end of the degree subject curriculum continues to be correct, stable and homogeneous, with an attainment rate of around 85%. But the performance at the first year (also called “Initial Phase”) remains at a success rate clearly inferior to the values desired for fulfilling the target rates of the academic indicators stated in the document of the degree verification. Specifically, the target of a drop-out rate that is under 38% is not being satisfied yet; we only have available the result of this indicator for the course 2014/15 which was 54.6% (evidence [97]).

However, thanks to the introduction and consolidation of the re-evaluation mechanism and other complementary plans (tutorial plan, revision of the planning and assessment method of some subjects), the students’ performance at the Initial Phase follows a growing trend which is clear in the latest years (presented and analysed at CP, evidence [420] at “Grups” CP):

Starting year	Number of students	Dropout first year	Dropout second year	Dropout third year	Dropout fourth year	Dropout ratio
2015	443					**0,00%**
2014	430	23,89%				**23,89%**
2013	416	26,92%	38,46%			**38,46%**
2012	421	28,33%	41,90%	42,86%		**42,86%**
2011	409	31,30%	46,94%	49,39%	53,55%	**53,55%**
2010	414	34,54%	53,62%	55,07%	55,31%	**59,66%**

This positive trend, together with the increase in the admission cut-off mark, leads us to believe that it is feasible to accomplish the target drop-out rate in the mid-term, since the statistical

studies we have undertaken up to now show a clear correlation between the performance at the Initial Phase and the admission mark, as can be seen in the following graph:



Having the admission mark represented on the X axis, the blue line ("APTE") shows the percentage of students succeeding at the Initial Phase, while the other two show the percentage of students failing in their first year ("NA 15", purple line) or in the Initial Phase ("NA FI", green line).

Concerning the rest of the global academic indicators of the degree, the goals are being achieved, although the outcomes are of little significance yet because of the reduced number of graduates so far. Specifically, the efficiency rate has been maintained at over 90% in the first three years of graduates, whereas the stated goal was only to be over 68%.
The graduation rate in the course 2014/15 (the only one for which we already have results) was 16.5%, somewhat higher than the minimum goal of 14%. We must wait to have a more stable volume of graduates in the next courses in order to obtain more meaningful values of these academic indicators.

6.4 Graduates' occupation rates adequacy

Still there are few official results about the employment of our graduates, since the number of graduates was 27 in the course 2012/13 (those who entered the second year of the bachelor degree), 118 in the course 2013/14 and 107 in the course 2014/15. The most recent employment satisfaction survey was that of the 2014 edition (evidence [97] at *Indicadors de satisfacció*) in which the employment rate was 95.3% and the adequacy rate was 74.1%. In this same survey, the mean of the assessment of the utility of the theoretical education was 5.3 and the mean of the assessment of the utility of the practical education was 4.6 (both of which in an assessment range of 1 to 7). The graduate association "FIB Alumni" and the companies in the ICT sector which we collaborate with provide us context information, which confirms a very high employment rate of our graduates and their excellent reputation in the ICT professional environment.
At Universities and employment in Catalonia 2014 (complemented with evidence [106] Employers's survey) we can see that graduates were mainly in work three years after completing their university studies, specially in Engineering.

Masters' degrees (MEI)

6.1 Planning and delivery adequacy to enable achievement of the programme outcomes

The curricula have been designed so that all learning objectives and competences are achieved. The analysis performed by the evaluation of the final master's thesis and the feedback of the employers show that the MECES level is achieved and that students are proficient in the competences taught in the master programme.
Indicadors de satisfacció on evidence [98] for MEI students (on a grading scale from 1 to 5, with 5 meaning "totally agree"), the results show a high score for global satisfaction (3.7).

Possible repeated contents for students coming from Informatics Engineering degrees should be minimized due to a recognition mechanism and an accurate tutorship.

6.2 Learning assessment adequacy to enable achievement of the programme outcomes

The evaluation method of all the degree subjects is public in the teaching guide and accessible through the FIB web pages
http://www.fib.upc.edu/en/masters/mei/assignatures.html

Materials involved in the last evaluation of some students (academic year 2014-2015) have been collected for some selected subjects of the MEI curriculum (evidence [420] at “Grups” CAE with restricted access):

- VPEI-MEI. The course aims to promote the entrepreneurial spirit of the participants while establishing the process for developing a business plan that goes around an innovative business idea. For this reason, the process of developing the business plan will be done around one or more within three main innovation concepts. The three axes for the development of an innovative business idea around which the matter will evolve, are: the identification of long-term market trends as a source of innovation, technology benchmarking as an innovative inspiration and ethical business model as the core of innovative thinking.

- ISDCM-MEI. In this course the student has to get to know new transfer protocols for the Internet, how to structure network applications and how to design and deploy services for web distributed applications. It must also gain the ability to deal with security problems in the network and, in particular, on the web, and gain insight into the problems of secure access to the information, privacy and digital rights. Finally, students will become familiar with the systems of distribution and management of multimedia content, including knowledge of protocols, standards and mechanisms for representation, exchange, security and interoperability.

MEI Degree final project during 2014-15 academic year were 25 and are published in the annual report Memoria_2014-2015 page 243 (in Catalan, see Annual reports). We have also collected evidences (evidence [420] at “Grups” CAE with restricted access) of the materials involved in the evaluation of a sample of the Final degree project (TFM, in Catalan).

6.3 Students' study progress rates adequacy

FIB Masters in the new EHEA framework started in 2012. There are few academic years to analyse the evolution of results. They involve a low number of students and very few of them have graduated.
Evidence [98] shows academic results figures for MEI :

		2012-2013	2013-2014	2014-2015
MEI academic results	Egress rate (%)	95%	89,5%	90,3%
	Attainment rate (%)	91%	81,6%	77,2%
	Drop-out rate (%)	-	-	-
	Graduated rate (%)	-	-	-
	Efficiency rate (%)	-	88,9%	98,6%

These global academic indicator rates are high enough (and also global MEI qualifications at evidence [183] with restricted access), but we must wait to have a more stable volume of graduates in order to obtain more meaningful values.

6.4 Graduates' occupation rates adequacy

Evidence [98] shows academic results figures for MEI :

		2011-2012	2012-2013	2013-2014
MEI graduates	Women	-	-	0
	Men	-	-	4
	Total	-	-	4

And 2014-15 figures:

		2014-2015
MEI graduates	Women	2
	Men	7
	Total	9

Next table classifies occupation of some MEI graduates:

	Ongoing studies (PhD)	Working in Spain	Working in the EU	Working outside the EU	N/A
Graduated 2013-14	-	2	2	-	-
Graduated 2014-15	-	1	-	3	5

Masters' degrees (MIRI)

6.1 Planning and delivery adequacy to enable achievement of the programme outcomes

The curricula have been designed so that all learning objectives and competences are achieved. The analysis performed by the evaluation of the final master's thesis and the feedback of the employers show that the MECES level is achieved and that students are proficient in the competences taught in the master programme.
Indicadors de satisfacció on evidence [99] for MIRI students (on a grading scale from 1 to 5, with 5 meaning "totally agree"), the results show a high score for global satisfaction (3.6).

6.2 Learning assessment adequacy to enable achievement of the programme outcomes

The evaluation method of all the degree subjects is public in the teaching guide and accessible through the FIB web pages
http://www.fib.upc.edu/en/masters/miri/syllabus.html

Materials involved in the last evaluation of some students (academic year 2014-2015) have been collected for some selected subjects of the MIRI curriculum (evidence [420] at "Grups" CAE with restricted access):

- CPDS-MIRI. This course aims at providing the foundations about computing as a collection of tasks that may be executing simultaneously and potentially interacting with each other. These tasks can be executed on a single or multiple processors or distributed across a network. The course presents the models, challenges, algorithms and systems focusing on three main aspects/modules: concurrency (multiple computations interacting with each other), parallelism (multiple cores or processors), and distribution (multiple computers across a network). Following a set of introductory sessions, the course has three modules: concurrency (mandatory), parallelism (optional) and distribution (optional). The student has to select one of the two optional modules (parallelism or distribution). The lectures are complemented with programming exercises to illustrate the problems and evaluate the solutions.

- AMMM-MIRI. The task of building mathematical models that represent real-world problems and using existing tools for solving such models is an ubiquitous task in computer science. Knowledge about such tools and algorithms allows one to weigh up the balance between how precisely we formalize the problem and how tractable the resulting model is. With an special emphasis on their application to concrete computer science problems, this course will review some of these mathematical models and algorithms. First of all, we will review the basics of (integer) linear and non-linear programming. Then, metaheuristic algorithms will be presented as an alternative to the previous methods for combinatorial optimization problems. Other mathematical elements with strong impact in computer science, such as graphs or computation and use of eigenvalues/vectors, will also be covered throughout the course.
MIRI Degree final project during 2014-15 academic year were 15 and are published in the annual report Memoria_2014-2015 pages 243-245 (in Catalan, see Annual reports). We have also collected evidences (evidence [420] at "Grups" CAE with restricted access) of the materials involved in the evaluation of a sample of the Final degree project (TFM, in Catalan).

6.3 Students' study progress rates adequacy

FIB Masters in the new EHEA framework started in 2012. There are few academic years to analyse the evolution of results. They involve a low number of students and very few of them have graduated.

Evidence [99] [shows academic results figures for MIRI:

		2012-2013	2013-2014	2014-2015
MIRI academic results	Egress rate (%)	92%	96%	95,5%
	Attainment rate (%)	87%	91,6%	91,7%
	Drop-out rate (%)	-	-	12,5%
	Graduated rate (%)	-	-	50%
	Efficiency rate (%)	-	98,5%	96%

These global academic indicator rates are high enough (and also global MIRI qualifications at evidence [183] with restricted access), but we must wait to have a more stable volume of graduates in order to obtain more meaningful values.

6.4 Graduates' occupation rates adequacy

Evidence [99] [shows academic results figures for MIRI:

		2011-2012	2012-2013	2013-2014
MIRI graduates	Women	-	-	1
	Men	-	-	6
	Total	-	-	7

And 2014-15 figures:

		2014-2015
MIRI graduates	Women	5
	Men	21
	Total	26

Next table classifies occupation of some MIRI graduates:

	Ongoing studies (PhD)	Working in Spain	Working in the EU	Working outside the EU	N/A
Graduated 2013-14	6	2	-	1	-
Graduated 2014-15	9	3	-	4	5

Masters' degrees (MAI)

6.1 Planning and delivery adequacy to enable achievement of the programme outcomes

The curricula have been designed so that all learning objectives and competences are achieved. The analysis performed by the evaluation of the final master's thesis and the feedback of the employers show that the MECES level is achieved and that students are proficient in the competences taught in the master programme.
Indicadors de satisfacció on evidence [100] for MAI students (on a grading scale from 1 to 5, with 5 meaning "totally agree"), the results show a high score for global satisfaction (3.5).

6.2 Learning assessment adequacy to enable achievement of the programme outcomes

The evaluation method of all the degree subjects is public in the teaching guide and accessible through the FIB web pages
http://www.fib.upc.edu/en/masters/mai/syllabus.html
Materials involved in the last evaluation of some students (academic year 2014-2015) have been collected for some selected subjects of the MAI curriculum (evidence [420] at "Grups" CAE with restricted access):
- CI-MAI.The aim of this course is to provide the students with the knowledge and skills required to design and implement effective and efficient Computational Intelligence solutions to problems for which a direct solution is impractical or unknown. Specifically, students will acquire the basic concepts of fuzzy, evolutionary and neural computation. The student will also apply this knowledge to solve some real case studies.

- INLP-MAI. This course is an introduction to most relevants problems involved in Natural Language Processing, the most relevant techniques and resources used and the theories they are based on. The course includes an overview of Natural Language applications. The course is focused on the two most relevant approaches to Natural Language processing: knowledge based and empirical (both statistical and machine learning).

- ATCI-MAI. The aim of this course is to present to the students, different advanced techniques in computational intelligence. Once acquired the basic knowledge of fuzzy, evolutionary and neural computation in the CI-MAI course, the students are ready to go through more interesting and powerful computational intelligence approaches such are hybrid techniques: neuro-fuzzy and genetic-fuzzy systems, fuzzy inductive reasoning, fuzzy and heterogeneous neural networks and neural networks trained by means of evolutionary algorithms, as well as recurrent neural networks and incremental methods for neural networks construction.

MAI Degree final project during 2014-15 academic year were 9 and are published in the annual report Memoria_2014-2015 page 242 (in Catalan, see Annual reports). We have also collected evidences (evidence [420] at "Grups" CAE with restricted access) of the materials involved in the evaluation of a sample of the Final degree project (TFM, in Catalan).

6.3 Students' study progress rates adequacy

FIB Masters in the new EHEA framework started in 2012. There are few academic years to analyse the evolution of results. They involve a low number of students and very few of them have graduated.

Evidence [100] shows academic results figures for MAI:

		2012-2013	2013-2014	2014-2015
MAI academic results	Egress rate (%)	95%	97,1%	97,3%
	Attainment rate (%)	91%	85,5%	89,5%
	Drop-out rate (%)	-	-	-
	Graduated rate (%)	-	-	-
	Efficiency rate (%)	-	97,8%	97,5%

These global academic indicator rates are high enough (and also global MAI qualifications at evidence [183] with restricted access), but we must wait to have a more stable volume of graduates in order to obtain more meaningful values.

6.4 Graduates' occupation rates adequacy

Evidence [100] shows academic results figures for MAI:

		2011-2012	2012-2013	2013-2014
MAI graduates	Women	-	-	2
	Men	-	-	12
	Total	-	-	14

And 2014-15 figures:

		2014-2015
MAI graduates	Women	1
	Men	14
	Total	15

Next table classifies occupation of some MAI graduates:

	Ongoing studies (PhD)	Working in Spain	Working in the EU	Working outside the EU	N/A
Graduated 2013-14	3	2	2	1	1
Graduated 2014-15	3	3	2	1	3

INTERNATIONALISATION

UPC belongs to a network of European universities called CLUSTER. This participation implies the direct access of students from the UPC to the different universities belonging to the network. Also UPC belongs to the network CINDA where participates many countries from Latin America. See University networks at Mobility at evidence [417].

FIB has established different agreements with universities or institutions from different countries, and is constantly working to secure more agreements. All these agreements allow the student to make a stay in a foreign university to go to lectures, do the final project/thesis or accomplish a double degree.

The School, its teaching staff and its degree programmes are internationally recognised for their quality and for continuous innovation in the design of curricula and teaching methodologies. This spirit of excellence has placed the School at the forefront of delivering IT courses at university level. Thanks to its efforts, it has academic exchange and double degree agreements with 150 prestigious universities worldwide (see Partner universities map at Mobility at evidence [417]).

FIB has incorporated an international and intercultural dimension into the purpose, function and delivery of its education.

MEI, MIRI and MAI received AGAUR International Master's Programme mention (International Master's Programme (IMP)) for 2013-14 and 1014-15 academic years. This mention identify master's programmes with an outstanding international dimensions and professor qualification.

Relation of mobility programs (see Mobility programs) availables for FIB students:

- Erasmus+
- SICUE
- América Latina
- USA and Canada
- UPC-Europa
- UPC-China
- Go for Europe
- Vulcanus
- Scholarships of National Institute of Informatics (NII) Tokyo
- CERN
- IAESTE
- Balsells Scholarships
- AREAS+

Some of them has double degree program:

- Degree in Informatics Engineering:
  École d'Ingénieurs ISIS (Informatique et Systèmes d'Information pour la Santé)
  Centre universitaire Jean-François Champollion, Castres, França
- Master in Informatics Engineering:
  École d'Ingénieurs ISIMA (Institut Supérieur d'Informatique, de Modélisation et de leurs Applications)
  Université Blaise Pascal, Clermont-Ferrand, França
- Master in Innovation and Research in Informatics (MIRI)
  Centro de Investigación en Computación
  Instituto Politécnico Nacional de los Estados Unidos Mexicanos, México D.F., México

FIB staff investigation is carried out by means of different groups of research and investigation bodies, where international outstanding projects are being developed:

- Barcelona SuperComputing Center (BSC-CNS).
  More information at: http://www.bsc.es
- Center for research in NanoEngineering (CRNE).
  More information at: http://www.upc.edu/crne/
- Virtual Reality Centre of Barcelona (CRV).
- Biomedical Engineering Research Center (CREB).
  More information at: http://www.creb.upc.edu/
- Center of simulation and optimization of logistic systems (LogiSim).
  More information at: http://logisim.fib.upc.es/

FIB and its members participate in the following research groups collaborating with both public and private entities:

- ALBCOM - Algorithms, Biocomputing, Complexity and Formal Methods
- ANA - Advanced Network Architectures
- ARCO - Microarchitecture and Compilers
- CAP - High Performance Computing Group
- CBA - Broadband Communications Systems
- CNDS - Computer Networks and Distributed Systems
- DAMA - Data Management
- DCCG - Discrete, Combinatorial and Computational Geometry
- DCS - Distributed Control Systems
- DMAG - Distributed Multimedia Applications Group
- GESSI - Software Engineering for Information Systems
- GIE - Engineering Computing
- GNOM - Numerical Optimization and Modelling
- GREC - Knowledge Engineering
- GREMA - Mathematical Statistics and its Applications
- GRPLN - Natural Language Processing
- ICAIB - Computational Intelligence on Analysis of Biomedical Images
- KEMLG - Knowledge Engineering and Machine Learning
- LARCA - Laboratory of Relational Algorithms, Complexity and Learning
- LIAM - Laboratory of Information Analysis and Modelling
- LOGPROG - Logic and Programming
- MD - Discrete Mathematics
- MMAC - Mathematical Models Applied to Human and Natural Sciences
- MOVING - Modelling, Visualization, Interaction and Virtual Reality
- MPI - Information Modelling and Processing
- PROMALS - Mathematical Programming, Logistics and Simulation
- SOCO - Soft Computing
- SUSHITOS - Services for Ubiquitous, Social ans Humanistic Information Technology and Open Source
- TN - Number Theory
- VIS - Artificial Vision and Intelligent Systems

The strong internationalisation of the school results in a high number of student exchanges. UPC indicators about the number of incoming and outgoing students at FIB are:

	Incoming	**Outgoing**
2012/13	103	103
2013/14	84	49
2014/15	106	35
2015/16	80 (only first semester)	68

(please note that outgoing figure is highly dependent on the available public funding)

MEI, MIRI and MAI students origin figures show high proportions of foreign students:

New MEI students nationality	2012-2013	2013-2014	2014-2015
FIB graduates	9	1	3
UPC graduates	1	2	3
Catalunya	5	2	7
Spain	-	-	3
EEC	**-**	**-**	**-**
Europe not EEC	**-**	**1**	**-**
North and South America	**5**	**11**	**9**
Àsia	**-**	**-**	**-**
Àfrica	**-**	**-**	**-**
Oceania	**-**	**-**	**-**
New MIRI students nationality	2012-2013	2013-2014	2014-2015
FIB graduates	9	17	19
UPC graduates	2	5	4
Catalunya	-	3	4
Spain	6	4	5
EEC	**2**	**1**	**2**
Europe not EEC	**4**	**2**	**1**
North and South America	**4**	**5**	**3**
Àsia	**4**	**4**	**4**
Àfrica	**1**	**-**	**-**
Oceania	**-**	**-**	**-**
New MAI students nationality	2012-2013	2013-2014	2014-2015
FIB graduates	3	1	-
UPC graduates	2	1	2
Catalunya	6	7	6
Spain	1	2	1
EEC	**2**	**2**	**3**
Europe not EEC	**2**	**1**	**1**
North and South America	**4**	**1**	**4**
Àsia	**1**	**1**	**4**
Àfrica	**-**	**-**	**-**
Oceania	**-**	**-**	**-**

Internationalisation of the MAI educational programme

Artificial Intelligence (AI) research is interdisciplinary by nature and draws on computer science, mathematics, statistics, biology, neuroscience, cognitive science, linguistics, ethics, psychology and law. Research in AI at the consortium of Catalan universities supporting this program spans knowledge representation and reasoning, machine learning, natural language processing, autonomous agents, computer vision robotics, and visualisation.

MAI degree programme emphasis on practical techniques, and a solid theoretical background, for designing and constructing intelligent systems, enabling graduates from this course to apply their skills in a variety of settings. These skills are in high demand in the market. Graduates of this program have a good overview of the main AI techniques and an in-depth understanding of how to apply these techniques in at least one area within multi-agent systems, reasoning, data analytics and natural language processing. And graduates also have the skills to carry out AI research in academic and R&D environments and to identify how AI techniques can provide intelligent solutions to IT problems in companies and organisations.

MAI is taught entirely in English. This program is addressed to national and international students who wish to acquire advanced knowledge in AI in order to occupy positions of

responsibility in industry, the public sector and academia in Catalonia, Spain or abroad. The program covers many research areas related to the design, analysis and application of AI.

The admission requirements for the UPC's official masters can be found at What are the requirements to enrol in a master's degree?. But candidates must provide proof of their English proficiency. The Academic Committee is in charge of final decisions on student admission. It bases its decisions on the following:

- Final average grade for undergraduate degree that provides access to the master's degree
- Suitability of the candidate's previous degree. Holders of bachelor's degrees in Informatics, Computer Science, Information Technology, Computer Engineering, etc. will be given preference
- Academic performance on the previous degree
- Experience in innovation and research projects
- Additional university degrees

MAI, as well as the other EHEA degree programmes at FIB, has a wide range of mobility facilities (at Mobility in evidence [417]), both for students and academic staff.

MAI, as a new EHEA degree programme, is a 90 ECTS programme (three semesters full time) and it is based on a previous one. This previous one had two dual degree partner universities:

- Master's Programme in Information Systems and Computer Engineering (MEIC). Technical University of Lisbon, School of Engineering (IST) in Portugal.
- Master's Programme in Machine Learning and Data Mining (MACADAMIA), Aalto University of Science and Technology (formerly, Technical University of Helsinki, TKK) in Finland.

Now FIB is adapting these agreements to the new MAI degree programme, studying the implementation of double diploma agreements (see 483 in the Improvement proposals list at page 50)

Internationalisation of MAI academic staff

The academic staff, MAI Faculty, concerns an important academic group from UPC, UB and URV. They meet the qualifications requirements for programme delivery, and they have sufficient and recognised teaching, research and, where applicable, professional experience:
MAI-UPC: 19 academic staff (100% PhD), 67 merits in teaching positively evaluated, 40 merits in research positively evaluated.
MAI-UB: 12 academic staff (100% PhD), 22 merits in teaching positively evaluated, 21 merits in research positively evaluated.
MAI-URV: 7 academic staff (100% PhD), 40 merits in teaching positively evaluated, 17 merits in research positively evaluated.

Internationalisation MAI results

MAI has changed from the academic course 2012-13: now it is a course of 90 ECTS (MAI 90) instead of 120 ECTS (MAI 120). But it maintains the number of international graduates and the number of international students that enrols the (evidence [428]):

	2011-12	2012-13	2013-14
Number of international graduates	3	3	5
Number of international students enroled	54	50	44

EURO-INF LABEL (GEI,MEI,MIRI)

Partnerships. Stakeholders' needs

The annual report (in Catalan, see Annual reports) publishes yearly all the social projection (Memoria_2014-2015 pages 183-226) related to all stakeholder's needs.

FIB creates knowledge in order to contribute significantly to the progress of society with innovative initiatives as well as to the development of information technologies.
Meeting the needs of companies helps to prepare more effectively the professionals with skills that society needs. The collaboration between FIB and organisations, institutions and companies makes possible sharing interests and projects, and is often established in the terms listed below, even though we are always open to new innovative proposals:

1. Short Industrial Seminars
A company may consider participating in our Industrial Seminar Program, the short seminars given by professionals from leading companies to students (evidence [417] at University-Enterprise). The seminars are offered between the last week of January and the second of February. They last 9 hours, distributed in sessions of 3 hours. Labs are available in case instructors are interested in providing practical sessions in the seminar.

2. Participation in courses
Another alternative is to consider a possible collaboration in the different courses offered at FIB.

3. Scholarships and Awards
We encourage companies or other institutions to offer scholarships and/or awards to some of the best students. Evidence [419} at Grants and financial aid, and evidence [418] at Awards.

4. Placements via Educational Cooperation Agreements (to work in Spain or abroad)
Through Educational Cooperation Agreements, the University gives companies the opportunity to take on students in their final years so that they are able to gain practical professional experience. They will not be subject to contractual employment obligations and they may be entitled to tax deductions. Students who sign an educational cooperation agreement are subject to the following time restrictions:

- Eighty hours per month during the academic year (October-May). Exceptions are made to this limit when the agreement involves completing a thesis. There no restrictions outside the academic year (June to September).
- A total of 900 hours over the calendar year. The academic year for agreements starts on 15 September and ends on 14 September the following year.

Students who sign an agreement must have passed at least half of the credits on the degree they are studying. They must also take out a student insurance policy to cover the term of the agreement. The remuneration students received is paid directly by the company.
Additional information about Educational Cooperation Agreements is found at Placement (evidence [417] at University-Enterprise).

5. Sponsoring the IT Forum (*Fòrum de les Tecnologies de la Informació*)
One of the most interesting activities in order to give visibility to a company among students is to participate in the IT Forum (evidence [417] at University-Enterprise). The objective of the Forum is twofold: to bring students to the business world of the most important companies in the sector, and to provide these companies the opportunity to know our future engineers and receive their CVs. There are different activities and modalities of participation at the Forum, in which a company can find: exhibition stands, company presentations, the forum magazine, workshops, coffee-colloquium, conferences. Forum TI is open to any type of activity that the company may propose and which may be of interest to students of the UPC.

6. Sponsoring Festibity (http://www.festibity.com/)

Festibity is a major annual IT event that is held every year in May by FIB Alumni, gathering more than 500 professionals. With time for talks, round tables, awards and networking, it is intended to serve as a meeting point for businesses, universities and professionals from the IT sector. Every year it focuses on the role of IT on a given topic.

7. Collaboration through inLab FIB
inLab FIB is an innovation and research laboratory based at FIB, integrated in the CIT UPC Technology Center, that integrates academic personnel from different UPC departments and its own technical staff to provide solutions to a wide range of demands that involve several areas of expertise.
- inLab Talent Program Sponsorship. We ask enterprises to consider the option of sponsoring our inLab Talent Program. The main benefits of the program are that promotes the recruitment of talented graduates, a better and faster adaptation to the company culture and a better success ratio of new employees. Further information about the inLab Talent Program Sponsorship can be found at http://inlab.fib.upc.edu/en/information-for-companies
- inLab Open Innovation Labs. Companies can establish a university laboratory which allows UPC students to get involved and participate in developing projects for those companies. Such laboratories follow an open innovation schema, where participants will work in collaboration with the company under combined supervision of both the company and inLab professionals. Examples of possible tasks are prospection and technological evaluation, prototype development, creation of transversal software, best practice analysis, etc.
- R+D Projects. We offer expertise in several areas to develop research and development projects, either directly with companies, or as partners in R+D projects within H2020 or other frameworks. Other ways of collaboration can be built through industrial doctorates.

8. UPC 21 (http://www.upc.edu/upc21)
Further collaboration with the FIB and UPC can be articulated via the UPC 21 social outreach, sponsorship and patronage program though Enterprise Chairs, laboratory sponsorships, donations, or other forms of collaboration

9. Tax Incentives and CSR
Many of these activities listed above can benefit from tax incentives for companies and contribute to their Corporate Social Responsibility (CSR) goals.

Financial resources

UPC is a public Spanish University and is funded by the national and regional governments (see legal framework). Public universities are state-owned but granted a considerable degree of independence when it comes to self-government. Public universities are subject to Spanish administrative law, just as any other public body of the state. Public university staff, lecturers and professors are mainly granted civil servant status, which serves as a tenure.

The UPC budget (see UPC 2015 budget) is managed at two levels: a centralised budget and a delegated budget for each school and department. The UPC central administration manages the centralised budget. This budget includes the teaching and support staff salaries, major investments and financial operations for all the university.

The schools are provided with a delegated budget for some current expenses like teaching and lab materials. Additionally, schools are allowed to keep a share of some incomes like Educational Cooperation Agreements or classroom rental. These are the three main income accounts for the FIB delegated budget:

- FIB receives an allocation as one of the UPC schools, for current expenditures. The next table shows allocations of the most recent years (government' austerity measures brought about yearly decreases in the allocations):

	2012	2013	2014	2015
FIB Allocation (euros)	196.468,26	125.739,69	89.795,15	88.148,00

- Educational Cooperation Agreements establish a tax for university management that partially were yielded to FIB in recent years:

	2011	2012	2013	2014
ECA (euros)	98.880	105.120	107.600	102.472

- In these recent years FIB received over 20.000 euros from rents of classrooms and common places (for example for online tests like TOEFL).

FIB yearly expenses include:

	2014
Ordinary expenses	40506,41
TIC investments (1)	21841,59
TIC investments (2)	37480,15
inLab	51458,91
Grants	20872,88
Teaching material	14955,87
Laboratories material	15000

In addition to previous regularly incomes and expenses, FIB has incomes for specific investments: industry funding programs and governmental (national or international) funding programs. For example: AGAUR grants (International Master's programme for MEI, MIRI and MAI), specific projects (IT Forum, inLab Talent, inLab crowdfunding), industry donations (Everis, Google ,Social Point). The 2014 FIB budget indicates over 165.000 euros in specific investments.

The FIB School Board approves the budget, which is published in the annual report (in Catalan, Memoria_2014-2015 page 177).

4. Continuous improvement process

Continuous improvement process assessment

Monitoring process performed improvement plans, some of them finished at present and some others still in work. The current analysis in the accreditation process performs new improvement plans for each degree programme. In what follows we summarise the suggested changes and the status of the old and new improvement plans for each degree programme.

Bachelor degree (GEI)

Master	Source of change	Suggested change	Status
GEI	Monitoring Report	Global coordination structure	Done
GEI	Monitoring Report	Results assessment with *reavaluacions*	Done
GEI	Monitoring Report	Increase enrolment, especially women	Partially done. New FIB improvement plan about informatics knowledge (447 in pg 50)
GEI	Monitoring Report	Website update	Done. New improvement plan for website upgrade (478 in page 50)
GEI	Monitoring Report	QAS processes revision	Partially done. New improvement plan for QAS revision and implementation (481 pg 50)
GEI	Monitoring Report	Promote English taught subjects	Done. New improvement plan for consolidate/ give up an English taught cohort (482 pg 50)

New improvement plans for GEI degree programme concern:
- Possibility of a double specialization (see 483 in the Improvement proposals list at page 50)
- Internationalisation mention for students with 25% of ECTS of subjects taught in English (see 482 in the Improvement proposals list at page 50)
- New double degree agreements to obtain both a bachelor and a master degree (see 484 in the Improvement proposals list at page 50)

Masters' degrees (MEI, MIRI, MAI)

Masters received the verification in 2012, later than GEI. So monitoring process have less periodic reports because they have less academic years to evaluate, and basically involved increasing information or the number of students.

Master	Source of change	Suggested change	Status
MEI	Monitoring Report	Develop a master thesis guide	Done and publicly available
MEI	Monitoring Report	Increase the course description in the syllabus	Almost complete. Due on July 2016
MEI	Monitoring Report	Increase the number of registered students	Registered students are on the rise. Plans in promotion and communication have proven successful. New FIB improvement plan about informatics knowledge (see 447 in page 50)

New improvement plans for MEI degree programme concern:
- Implementation of a dual master programme (see 485 in the Improvement proposals list at page 50)
- New double masters' degree agreements (see 484 in the Improvement proposals list at page 50)

Master	Source of change	Suggested change	Status
MIRI	Monitoring Report	Develop a master thesis guide	Done and publicly available
MIRI	Monitoring Report	Increase the course description in the syllabus	Almost complete. Due on July 2016
MIRI	Monitoring Report	Increase the number of registered students	Registered students are on the rise. Plans in promotion and communication have proven successful. New FIB improvement plan about informatics knowledge (see 447 in page 50)

New improvements plans for MIRI degree programme concern:
- Study the reorganisation of compulsory courses into two semesters (see 487 in the Improvement proposals list at page 50)
- Find a mechanism to recognise courses taken in previous undergraduate (see 488 in the Improvement proposals list at page 50)
- Promote creation of more seminars (see 489 in the Improvement proposals list at page 50)
- New double masters' degree agreements (see 484 in the Improvement proposals list at page 50)
- Renaming some subjects (see 486 in the Improvement proposals list at page 50)

Master	Source of change	Suggested change	Status
MAI	Monitoring Report	Develop a master thesis guide	Done and publicly available
MAI	Monitoring Report	Increase the course description in the syllabus	Almost complete. Due on July 2016
MAI	Monitoring Report	Increase the number of registered students	Registered students are on the rise. Actions in promotion and communication have proven successful. New FIB improvement plan about informatics knowledge (see 447 in page 50)

New improvement plans for MAI degree programme concern global changes. Artificial Intelligence is a fast-paced and challenging field and its results are present in our everyday life. After few years of activity the Master Program on Artificial Intelligence (MAI) is prepared to promote some changes to adjust the programs and update contents to the actual and near future research and professional trends within the field. To offer an integrative and cutting-edge approach to the field a more flexible academic structure to cope with those changes. We expect our graduates to be familiar with the basics of several advanced areas of AI and with the current research directions. Therefore it is necessary to provide means to adapt the program in a seamless fashion.

The intended changes touch all aspects of the academic and social life of the program. With the proposed changes the programme is willing to offer the students new options:
- Data Science. This option is intended for students willing to become specialists in the analysis of Data Science. It instructs the students in Statistics, Machine Learning, Data Mining, and Advanced programming techniques for dealing with Data Science. It may offer a range of application domains as for example Information Retrieval, Bio-Informatics, Computer Vision, and others.
- Assistive Technologies and Care Services. This option is intended for students willing to become specialists in the design and development of Assistive Technologies. It instructs the students in Machine Learning, Robotics, Human Computer interfaces, and advanced programming techniques. It may offer a range of application domains in line with the existing EU projects where researchers of the three Universities do participate.

New improvements plans for MAI degree programme concern:
- To recognise credits from other programs (see 488 in the Improvement proposals list at page 50)
- To create new intensifications (Data Science, Assistive technologies and care services) and subject complements for them (see 491 in the Improvement proposals list at page 50)
- To review structure and contents of existing intensifications: up-date, share subjects, extend subject number of credits, update format and contents (see 492 in the Improvement proposals list at page 50)
- Change the mandatory nature of the subject Intelligent data analysis applications in business (see 493 in the Improvement proposals list at page 50)
- Renaming some subjects (see 486 in the Improvement proposals list at page 50)

Improvement proposals list

M.447.2015	**Increase knowledge and interest of computer engineering profession** **Standard:** Standard 1 **Purpose:** To boost the knowledge and social recognition of the studies and the profession of computer engineering **Objectives:** To promote and collaborate in initiatives which aim to promote the role of information technology **Scope:** FIB **Responsible:** Vice-dean for Communications **Priority:** Medium **Modification of *Verifica*:** No **Term:** 2015/17 academics year **Indicators:** Number of secondary schools contacted and number of girls interested **State:** In process **Description:** We have started expanding contact with secondary schools to promote a better understanding of the profession and the scope of studies in computer science engineering, and to take the opportunity to influence especially the feminine group

M.478.2015	**Website upgrade** **Standard:** Standard 2 **Purpose:** FIB website has to be the tool of communication more attractive and informative to the targeted stakeholders. **Objectives:** To adapt website to the latest technological developments. To review the aesthetic website aspects to improve information and satisfaction **Scope:** FIB **Responsible:** Dean's team **Priority:** High **Modification of *Verifica*:** No **Term:** 2015/16 academic year **Indicators:** Check list (actual and new information) to verify. Computer and mobile access. **State:** In process **Description:** A committee has started to define actual and new information to cover

M.481.2015	**QAS revision and implementation** **Standard:** Standard 3 **Purpose:** To review QAS processes and to standardise and to allow flexibility **Objectives:** To standardise rules and regulations dealing with formal communication and exchange of information between governing bodies and with target groups **Scope:** FIB **Responsible:** Vice-dean of quality **Priority:** Medium **Modification of *Verifica*:** No **Term:** 2015/16 academic year **Indicators:** Number of processes standarisated **State:** In process **Description:** Started a initial standardisation of committees minutes

M.482.2015	**Consolidate English taught subjects** **Standard:** Standard 6 **Purpose:** To consolidate English taught subjects **Objectives:** To increase students enrolling English taught subjects by adding an internationalisation mention for students with minimum 25% of ECTS of subjects taught in English **Scope:** GEI **Responsible:** Vice-dean/head of studies and CAGEI **Priority:** Medium **Modification of *Verifica*:** No **Term:** 2015/17 academics years **Indicators:** Number of English taught subjects and number of students for internationalisation mention **State:** In process **Description:** Number of students interested in subjects taught in English decreases because it's not useful to accredit third language. So a new incentive is necessary.

M.483.2015	**Possible GEI double specilisation** **Standard:** Standard 6 **Purpose:** To allow double specialisation with minimum number of over ECTS **Objectives:** Students could reach a double specialisation identifying groups of subjects to share **Scope:** GEI **Responsible:** Vice-dean/head of studies and CAGEI **Priority:** Low **Modification of *Verifica*:** Yes **Term:** 2015/17 academic years **Indicators:** Define the feasible double specialisations and the subjects implied **State:** Not started

M.485.2015	**Study the implementation of a dual master programme** **Standard:** Standard 6 **Purpose:** A dual master programme allows students to combine seamlessly their jobs and master through a tight collaboration between the companies and the university **Objectives:** Evaluate the suitability and implementation details of a dual master programme. **Scope:** MEI **Responsible:** Vice-dean of Postgraduated Studies and CAMEI **Priority:** Medium **Modification of *Verifica*:** Yes **Term:** 2015/17 academic years **Indicators:** Check UPC regulations and possibilities of implementing such a program **State:** Not started

M.484.2015	**New double degree agreements** **Standard:** Standard 6 **Purpose:** To promote student's mobility in both senses **Objectives:** Evaluate the suitability and implementation details of double diploma agreements with foreign institutions. **Scope:** GEI MEI MIRI MAI **Responsible:** Vice-dean/head of studies, Vice-dean of Postgraduated Studies and CAGEI CAMEI CAMIRI CAIMAI **Priority:** High **Modification of *Verifica*:** Yes **Term:** 2015/17 academic years **Indicators:** Number of new contacts and number of agreements **State:** In process **Description:** We already established contacts with the Centro de Investigación en Computación (CIC-IPN). There is the idea to recover previous agreements with Instituto Técnico Superior (IST) and A. Aalto (A!), both CLUSTER members.

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M.486.2015	**Renaming some subjects (MEI, MIRI, MAI)** **Standard:** Standard 6 **Purpose:** To update names of subjects **Objectives:** To Adapt the names of the subjects to current terminology in the area of research. **Scope:** MEI MIRI MAI **Responsible:** Vice-dean of Postgraduated Studies and CAMEI CAMIRI and CAIMAI **Priority:** Medium **Modification of *Verifica*:** Yes **Term:** 2015/17 academics years **Indicators:** Number of changed names **State:** Not started

M.487.2015	**MIRI reorganisation semesters and contents of compulsory courses** **Standard:** Standard 6 **Purpose:** First semester compulsory courses are very crowded in the first semester and almost empty in the second semester **Objectives:** To balance the number of students, we want to evaluate the possibility to move some compulsory courses for some specialties to the second semester without affecting the learning outcomes **Scope:** MIRI **Responsible:** Vice-dean of Postgraduated Studies and CAMIRI **Priority:** Medium **Modification of *Verifica*:** No **Term:** 2015/16 academic year **Indicators:** Number of compulsory courses that can be moved **State:** Not started

M.488.2015	**MIRI: find a mechanism to recognise courses taken in previous undergraduate studies** **Standard:** Standard 6 **Purpose:** Compulsory courses in the master were planned for graduate students that have previously finished a Bachelor in Computer Engineering. Now, the master attracts students from neighboring areas that have already taken similar courses but they would benefit from taking more computer engineering fundamental courses. We want to find a mechanism so that any student can have a personalised set of compulsory courses so that we can guarantee their proficiency in all the areas covered by the initially planned compulsory courses. **Objectives:** Reduce the amount of redundant courses for students coming from other Bachelor degrees than Computer Engineering **Scope:** MIRI **Responsible:** Vice-dean of Postgraduated Studies and CAMIRI **Priority:** Low **Modification of *Verifica*:** No **Term:** 2015/17 academic years **Indicators:** Evaluation of the legal framework and experience in other masters at UPC **State:** Not started

M.489.2015	**Creation of more seminars for MIRI** **Standard:** Standard 6 **Purpose:** To offer to the students a more seminars to obtain a wider knowledge on the hot topics of research **Objectives:** In order to have enough seminars for the students there is a need on promoting the creation of new seminars among the local and visiting professors. **Scope:** MIRI **Responsible:** Vice-dean of Postgraduated Studies and CAMIRI **Priority:** Low **Modification of *Verifica*:** No **Term:** 2015/17 academic years **Indicators:** Number of students and number of current and new seminars **State:** Not started

M.490.2015	**MAI: recognise credits from other programs.** **Standard:** Standard 1 **Purpose:** The modern master academic programs should allow flexibility to adapt to the academic needs of students. **Objectives:** Give options to students delve into issues not offered by the program. Allow students to take up [9..12] ECTS from other programs Official Master **Scope:** MAI **Responsible:** Vice-dean of Postgraduated Studies and CAIMAI **Priority:** Medium **Modification of *Verifica*:** No **Term:** 2015/16 academic year **Indicators:** Number of credits and subjects **State:** Not started

M.491.2015	**MAI: new intesifications** **Standard:** Standard 6 **Purpose:** It has been identified the need of new intensifications: Data Science, and *Assistive Technologies and Care Services*. These new intensifications aims to train students in the intelligent processing of large volumes of data, and to prepare students for the development of smart technologies and services in health care, as well as research in the field of disability and mHealth **Objectives:** To update the Master's academic contents in an emerging area in research and the market **Scope:** MAI **Responsible:** Vice-dean of Postgraduated Studies and CAIMAI **Priority:** High **Modification of *Verifica*:** Yes **Term:** 2015/17 academic years **Indicators:** Definition of the new intensifications with existing and new subjects **State:** Not started

M.492.2015	**MAI: review structure and contents of existing intesifications** **Standard:** Standard 6 **Purpose:** To review structure and contents of existing intensifications. **Objectives:** To update and share subjects, extend subject number of credits, update format and contents **Scope:** MAI **Responsible:** Vice-dean of Postgraduated Studies and CAIMAI **Priority:** High **Modification of *Verifica*:** Yes **Term:** 2015/17 academic years **Indicators:** Provide a mechanism to update the contents of the Master and not to lose the pulse of the development of the professional issues in the area **State:** Not started

M.493.2015	**MAI: change the mandatory nature of a subject** **Standard:** Standard 6 **Purpose:** To change the mandatory nature of the subject Intelligent data analysis applications in business **Objectives:** The change is necessary to ease the academic structure of the program **Scope:** MAI **Responsible:** Vice-dean of Postgraduated Studies and CAIMAI **Priority:** High **Modification of *Verifica*:** Yes **Term:** 2015/17 academic years **Indicators:** **State:** Not started

M.494.2015	**Homogenize itineraries for the UPC GEI degree programmes** **Standard:** Standard 1 **Purpose:** UPC has two itineraries for the GEI degree programme and they have slight differences in particular for the final degree project **Objectives:** To two itineraries should be homogenized in particular for the final degree project **Scope:** GEI **Responsible:** Vice-dean of quality **Priority:** High **Modification of *Verifica*:** Yes **Term:** November 2016 **Indicators:** **State:** Started

M.495.2015	**Completely implementation of a QAS revision process** **Standard:** Standard 3 **Purpose:** QAS doesn't have an implemented and systematic process for the QAS revision **Objectives:** To implement the process and to update the QAS following the "Guía para la certificación de la implantación de sistemas de garantía interna de calidad" (AQU, November 2016) **Scope:** FIB **Responsible:** Vice-dean of quality **Priority:** High **Modification of *Verifica*:** No **Term:** November 2016 **Indicators:** **State:** Started

5. Evidences

Codi	Evidència
95	Quadre de comandament del centre (FIB indcators)
96	Observatori de rànquings (rankings)
97	Quadre de comandament del Grau en Enginyeria Informàtica (GEI indicators)
98	Quadre de comandament del Màster universitari en Enginyeria Informàtica (MEI indicators)
99	Quadre de comandament del Màster universitari en Innovació i Investigació Informàtica (MIRI indicators)
100	Quadre de comandament del Màster universitari en Intel.ligència Artificial (MAI indicators)
101	Informes de seguiment i avaluació de les titulacions (IST i IAST) (Monitoring reports)
102	Memòria i informe de verificació de les titulacions (Verification reports)
103	Pla de formació del PDI (UPC formation planning)
104	Pla d'actuació institucional per facilitar la inserció laboral (UPC occupation planning)
105	Llistat de laboratoris i tallers avaluats pel SPRL (Departamental laboratories)
106	Enquestes als ocupadors (Stakeholders surveys)
107	Fitxa d'indicadors i ús de la biblioteca (Library indicators)
158	Formació realitzada pel PDI del centre (Academic staff formation)
182	Producció científica del PDI del Centre (Research indicators)
183	Qualificacions de les assignatures de les titulacions del centre curs 2014_2015 (Qualifications)
417	FIB website
418	GEI website
419	Masters' website
420	Committees' groups at "Racó"
425	Fitxa d'indicadors del PDI de la FIB (Academic staff indicators)
426	Valoració professorat règim de dedicació FIB
427	Experiència professional PDI FIB (Professional experience)
428	Fitxa d'indicadors de la titulació: Internacionalització (Internationalisation indicators)
562	Relació de projectes competitius i no competitius del PDI de la FIB (Projects)
563	Activitat investigadora del PDI de la FIB (Research indicators)
616	School Board certificate of SAR approval