

# Self-assessment report (SAR)

for the

**MQF and MQA (ASIIN and AQU accreditation process)**

**MCiEM (AQU accreditation process)**

- *Master Universitario en Química Farmacéutica (MQF)*  
*University Master's Degree in Pharmaceutical Chemistry*
- *Master Universitario en Química Analítica (MQA)*  
*University Master's Degree in Analytical Chemistry*
- *Master Universitario en Ciencia e Ingeniería de Materiales (MCiEM)*  
*University Master's Degree in Materials Science and Engineering*

**IQS School of Engineering (IQS-SE)**

***Ramon Llull University (URL)***

**Barcelona, 22/01/2018**



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## I. ACRONYMS

ABET	Accreditation Board of Engineering (USA)
ASIIN	Accreditation Agency for Degree Programs in Engineering, Computer Science and Natural Sciences (Germany)
AQU	<i>Agència de Qualitat Universitària (Catalunya)</i>
BOE	<i>Boletín oficial del Estado (Spanish official publications)</i>
CAI	<i>Comitè d'Avaluació Interna</i> / Internal self-assessment committee
CC	<i>Consejo de Centro</i> / Executive Board
CU	<i>Consejo de Universidades</i> / Ministry of Education of Spain Committee
CPJA	Comisión Permanente de la Junta Académica / JA Committee
ECTS	1 ECTS credit = 27 hours of student involvement in classroom and non-contact activities.
EHEA	European Higher Education Area
EQF	European Qualifications Framework for lifelong learning
IQS	<i>Institut Químic de Sarrià</i>
IQS-SE	IQS School of Engineering
IQS-SM	IQS School of Management
ISC	<i>Informe de Seguimiento de Centro</i> / Degree Program Monitoring report
IST	<i>Informe de seguimiento de Título</i> / Center Monitoring report
JA	<i>Junta Académica</i> / Academic Board
MEC	<i>Ministerio de Educación y Cultura</i> / Ministry of Education of Spain
MECES	Marco Español de Cualificación para la Educación Superior / Qualification Framework EHEA
MQA	Master Universitario en Química Analítica / University Master's Degree in Analytical Chemistry
MQF	Master Universitario en Química Farmacéutica / University Master's Degree in Pharmaceutical Chemistry
MCiEM	Master Universitario en Ciencia e Ingeniería de Materiales / University Master's Degree in Materials Science and Engineering
MSc	Master of Science
MSGIQ	<i>Manual del Sistema de Garantía Interna de la Qualitat</i> / QA System Manual
OEC	Órgano Específico de Centro para DOCENTIA / DOCENTIA program committee
PAS	Personal Administrativo y de Servicios / Administration and Services Staff
QA	Quality Assurance
RRII	Relaciones Internacionales / International Relations Service
SAR	Self-assessment report
SET	Suplemento Europeo al Título / European Diploma Supplement
SSC	Subject-Specific Criteria
TFG	Trabajo de final de Grado / Final Undergraduate Project
TFM	Trabajo de final de Master / Master Thesis
URL	<i>Universitat Ramon Llull</i> / Ramon Llull University

## II. BACKGROUND INFORMATION AND INSTITUTIONAL SUMMARY

<b>University</b>	<i>Universitat Ramon Llull</i>
<b>Name of the center</b>	IQS School of Engineering / <i>Escola Tècnica Superior IQS</i>
<b>Contact information</b>	Via Augusta 390, 08017 Barcelona Phone: +34 932 672 000 <a href="http://www.iqs.edu/">http://www.iqs.edu/</a>
<b>Responsible for the preparation of the self-assessment report (CAI)</b>	<ul style="list-style-type: none"> <li>- Dr. Jordi Teixidó, Dean</li> <li>- Dr. Rosa Nomen, General Secretary</li> <li>- Dr. José M. Blanco, Head of Quality Assurance</li> <li>- Dr. Marta Tena, Corporate Communications and Marketing Director</li> <li>- Dr. José I. Borrell, MQF Coordinator</li> <li>- Dr. Jordi Abellà, MQA Coordinator</li> <li>- Dr. Carlos Colominas, MCiEM Coordinator</li> <li>- Mrs. Susanna Castillo, Representative of PAS</li> <li>- Mr. Victor Masip, student of MQF</li> <li>- Mrs. Marta Riba, student of MQA</li> <li>- Mr. Ferran Crugeira, student of MCiEM</li> </ul>

Degrees IQS-SE (2016-2017)	MEC code	ECTS Credits	Year of implementation
Bachelor Degree in Chemistry <sup>1</sup>	2500409	240	2009
Bachelor Degree in Chemical Engineering <sup>1</sup>	2500423	240	2009
Bachelor Degree in Industrial Engineering Technology <sup>1</sup>	2502410	240	2010
University Master's Degree in Bioengineering <sup>1</sup>	4312795	90	2011
University Master's Degree in Chemical Engineering <sup>1</sup>	4313215	90	2012
University Master's Degree in Industrial Engineering <sup>2</sup>	4313217	120	2012
Bachelor Degree in Biotechnology	2502808	240	2013
Bachelor Degree in Pharmacy	2502992	300	2014
<b>University Master's Degree in Pharmaceutical Chemistry</b>	<b>4314628</b>	<b>90</b>	<b>2014</b>
<b>University Master's Degree in Analytical Chemistry</b>	<b>4314673</b>	<b>90</b>	<b>2014</b>
<b>University Master's Degree in Materials Science and Engineering</b>	<b>4314697</b>	<b>90</b>	<b>2014</b>
Doctoral Degree in Chemistry and Chemical Engineering	5600280	na	2011
Doctoral Degree in Bioengineering	5600281	na	2011

<sup>1</sup> Official Degrees accredited by AQU Catalonia during 2015

<sup>2</sup> Official Degree accredited by AQU Catalonia during 2016

**Institut Químic de Sarrià** (IQS) is founder center of the **Universitat Ramon Llull** (URL), created March 1st 1990 and approved by the Parliament of Catalonia on May 10th 1991.

The purpose of the IQS Private Foundation, Higher Technical Education Centre, is to manage and administrate IQS, which was founded by the Society of Jesus in 1916 with the goal of educating people so that, based on a solid human and Christian education, they acquire a thorough university education with the aim of being able to hold positions of responsibility in the world of business and industry. The highest governing body of the foundation is the **Board of Trustees** (*Patronato*), which represents the foundation.

The functions and obligations of the board of trustees are the following: (i) ensure that the goals of the foundation are met, in accordance with the provisions of the articles of association and the law; (ii) conserve the goods and rights that make up the patrimony of the foundation and fully maintain productivity, in accordance with financial criteria and economic circumstances; and (iii) serve in the position with the due diligence of a loyal administrator. <https://www.iqs.edu/en/about-iqs/whos-who/board-of-trustees>

The Board of Trustees appoints the **Managing Director IQS**, who is responsible for the daily management of the institution and reports to the Board of Trustees.

The Managing Director IQS proposes and appoints the members of the **Executive Board** (*Consejo de Centro*), who will also be accepted by the Board of Trustees. The Executive Board collaborates actively with the Managing Director IQS in all different areas of work. This council, that meets together every month, must also make the appropriate coordination between departments and be the transmission system of policies and guidelines established by the Managing Director IQS. The following nine members constitute the Executive Board: Managing Director IQS, Dean of the IQS School of Engineering, Dean of the IQS School of Management, IQS Tech Transfer Director, Executive Education Director, Administration Director, General Secretary, Human Resources and General Services Director, Corporate Communications and Marketing Director.

Teaching at the IQS is divided between the IQS School of Engineering for studies in the fields of Engineering and Chemistry, and the IQS School of Management in the field of Business:

**IQS School of Engineering** (IQS-SE) was founded in 1916. Hundreds of higher education graduates have been trained in its lecture rooms in the fields of Chemistry, Chemical Engineering, Industrial Engineering and Bioengineering. Those graduates carry out their work in most companies in Spain and some of Latin America. IQS-SE is organized in the following Scientific Departments: Analytical and Applied Chemistry, Organic and Pharmaceutical Chemistry, Bioengineering, Chemical Engineering and Industrial Engineering.

**IQS School of Management (IQS-SM)** was created in 1991. Since then, it has been engaged in the integral training of people with attitudes, knowledge and skills that enable them and encourage them to create, lead and manage organizations. The training offer started with the degree program and doctorate in Business Administration and Management and, after the adaptation to the Bologna system, started to teach the Bachelor Program in Business Administration and Management, some Master's degrees and Doctorate. IQS-SM is organized in three departments: Business Management, Economics and Finance and Quantitative Methods.

The incorporation as Department, in both Schools, of the Chair of Ethics and Christian Thought of IQS (created in September 1999), was approved at the Academic Boards of IQS-SE and IQS-SM on February 2017.

The figures presented below summarize the evolution of the total number of students in the last five academic years.

#### Evolution of the total number of students

	IQS School of Engineering					IQS School of Management					total				
	12-13	13-14	14-15	15-16	16-17	12-13	13-14	14-15	15-16	16-17	12-13	13-14	14-15	15-16	16-17
Undergraduate	532	514	509	704	831	545	492	490	487	474	1077	1006	999	1191	1305
Master	52	87	113	199	250	83	59	68	116	130	135	146	181	315	380
Doctorate	52	58	69	46	41	32	23	28	10	13	84	81	97	56	54
<b>Total students</b>	<b>636</b>	<b>659</b>	<b>691</b>	<b>949</b>	<b>1122</b>	<b>660</b>	<b>574</b>	<b>586</b>	<b>613</b>	<b>617</b>	<b>1296</b>	<b>1233</b>	<b>1277</b>	<b>1562</b>	<b>1739</b>

#### Evolution of the new students entering the Bachelor Degrees

IQS School of Engineering		2012-13	2013-14	2014-15	2015-16	2016-17
Chemistry / Chemical Engineering		53	54	52	51	55
Industrial Engineering		60	60	78	42	54
Biotechnology		na	48	58	52	67
Pharmacy		na	na	59	65	54
<b>Total students</b>		<b>113</b>	<b>162</b>	<b>247</b>	<b>210</b>	<b>230</b>

IQS School of Management		2012-13	2013-14	2014-15	2015-16	2016-17
Business Administration and Management		132	97	110	152	138
<b>Total students</b>		<b>132</b>	<b>97</b>	<b>110</b>	<b>152</b>	<b>138</b>
<b>Total students IQS</b>		<b>245</b>	<b>259</b>	<b>357</b>	<b>362</b>	<b>368</b>

<b>Double degree (computed only for SE)</b>	<b>na</b>	<b>na</b>	<b>23</b>	<b>28</b>	<b>24</b>
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### Evolution of the new students entering the Master Degrees

<b>IQS School of Engineering (Master )</b>	<b>2012-13</b>	<b>2013-14</b>	<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>
Bioengineering	14	19	25	19	15
Chemical Engineering	9	28	21	22	30
Chemistry	13	26	-	-	-
Analytical Chemistry	-	-	4	6	8
Pharmaceutical Chemistry	-	-	10	15	23
Materials Science and Engineering	-	-	5	6	11
Industrial Engineering	-	-	38	30	31
Research in Chemistry and Chemical Engineering	4	-	-	-	-
<b>Total</b>	<b>40</b>	<b>73</b>	<b>103</b>	<b>98</b>	<b>118</b>
<b>IQS School of Management (Master / Diploma)</b>	<b>2012-13</b>	<b>2013-14</b>	<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>
International Marketing & Sales Management	17	14	17	15	21
Management of Industrial Enterprises	13	8	14	26	25
Global Entrepreneurial Management (IQS) *	42	34	37	42	39
Research in Economics and Business	11	-	-	-	-
Auditing and Management Control	-	-	4	12	12
Analysis and Investment Banking	-	-	-	6	7
<b>Total</b>	<b>83</b>	<b>56</b>	<b>72</b>	<b>101</b>	<b>104</b>
<b>Total IQS</b>	<b>123</b>	<b>129</b>	<b>175</b>	<b>199</b>	<b>222</b>

The Research carried out by the different IQS research groups is an essential support for quality in teaching. The IQS-SE PhD Program allows the students of Industrial Engineering, Chemistry and Chemical Engineering to complete after a three-year period, their research curricula. Such PhD Program has repeated mentions of quality and currently the Mention towards Excellence (BOE, Resolution of October 6, 2011).

The following figure presents a summary of the main Research indicators in the last four academic years.

Summary of leading indicators	IQS School of Engineering				IQS School of Management				total			
	12-13	13-14	14-15	15-16	12-13	13-14	14-15	15-16	12-13	13-14	14-15	15-16
PhD Defenses	6	10	14	16	5	4	2	3	11	14	16	19
TFG, TFM defenses	114	133	135	187	113	95	94	164	227	228	229	351
Articles (JCR journals)	42	47	50	59	3	6	4	7	45	53	54	66
Books and Book Chapters	9	13	4	7	11	5	11	10	20	18	15	17
Conference Communications	56	74	65	65	29	21	38	29	85	95	103	94
Patent applications	5	4	4	2	-	-	-	-	5	4	4	2

#### Competitive Research Projects

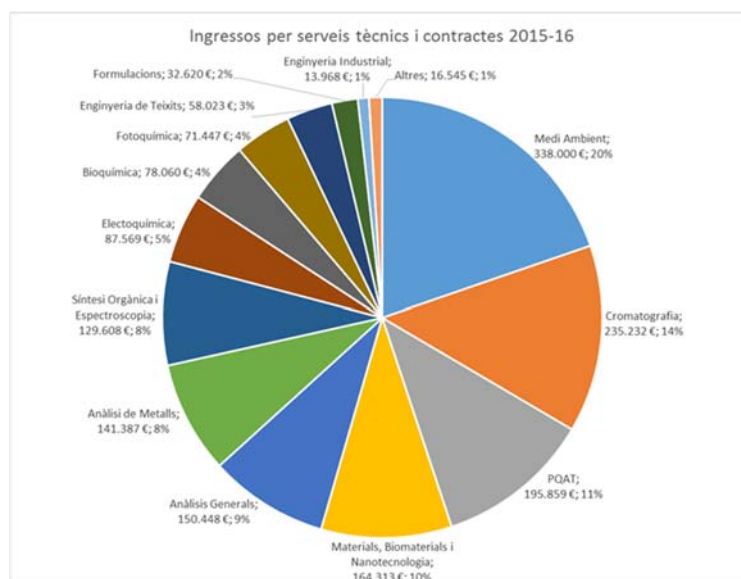
Amounts granted (€, full length project)

11-12	12-13	13-14	14-15	15-16
576,486	890,710	623,683	697,865	1,264,982



Since 1963 IQS provides assistance and advice services to industries, companies and administrations through research contracts, consultancies, industry surveys and analyses. **IQS Tech Transfer, S.A.** (<http://techtransfer.iqs.edu/es/>) is the division that encompasses the R+D+I, knowledge transfer and technology activities of the IQS-SE. IQS Tech Transfer, S.A. , is a joint stock company of the IQS foundation.

The figure below details the volume of activity according to laboratories and research groups:



In addition, and within the framework of mobility programs, such as Erasmus or Sicue-Seneca, IQS participates in numerous agreements with foreign universities, which allows its students to follow part of the degree at a foreign university.

➤ **Mobility of students IQS-SE/IQS**

	2013-14	2015-16	2016-2017
In-coming students	30/189	24/205	23/226
Out-going students	63/123	71/126	86/117

The following international awards provide the evidence of the commitment with quality expressed by IQS Direction:

- The Bachelor Programs in Chemical Engineering (2009 Plan - 4 years) and Industrial Engineering (2003 Plan - 5 years) are accredited by the Engineering Accreditation Commission of ABET ( <http://www.abet.org/> ).
- Accreditation by the AACSB (Association to Advance Collegiate Schools of Business, USA) of all the studies of IQS School of Management.

### III. PROCESS FOR THE ELABORATION OF THE SELF-ASSESSMENT REPORT

Guideline D2 (version 3) of the Manual of the Internal Quality Assurance System (IQS-MSGIQ) establishes the process to be followed for the accreditation of official degrees, which includes:

- Phases to be followed in the elaboration and sending of the self-report.
- The composition of the Internal Evaluation Committee (CAI) responsible for the elaboration of the self-assessment report.

- **Creation of the internal evaluation committee (CAI)**

The Dean of the IQS-SE informed the composition of the specific internal evaluation committee (CAI) for the accreditation of the IQS-SE Masters (MQF, MQA and MCiEM) at the meeting of the Executive Board (*Consejo de Centro*) on 04/09/17 and at Academic Board on 07/09/17.

Subsequently, the meeting for the constitution of the CAI was held on 10/10/2017 under the presidency of the Dean of IQS-SE.

The CAI includes the participation of representatives of the different interest groups:

- Academic officers (Dean of IQS-SE, General Secretary and Corporate Communications and Marketing Director)
- Teaching staff (coordinators of Master's degrees to be accredited)
- Head of Quality Assurance (IQS –SE)
- Administration and Services Staff (Dean's Office)
- Students (representatives of the students in the Academic Board of IQS-SE).

The people who are part of the CAI know in advance the processes associated with AQU guidelines for the accreditation of official university titles and had participated in the elaboration of the monitoring reports of titles and of IQS-SE (IST and ISC). ASIIN criteria have been previously revised by the Dean, the Coordinators of the Master's Degrees and the Quality Assurance Responsible and have been presented to the rest of the CAI.

- **Data collection and elaboration of the Self-Assessment Report**

This report has been elaborated in accordance with:

- ASIIN Quality Seal - Criteria for the Accreditation of Degree Programmes (0.3 Annex ASIIN Quality Seal Programmes, 2015 document).
- AQU Catalunya Guide for the accreditation of official degrees in master's degree (version 4 of October 2016).

We emphasize that the process of monitoring the titles, which is considered a highly consolidated process, has facilitated the availability of information and the quality of the evidences.

After the second CAI meeting, the integrated ASIIN-AQU Template for the Self-assessment Report was established. ASIIN structure has been used including extra section for specific AQU requirements.

The correspondence between ASIIN and AQU criteria was summarized in the next Table (included as an evidence):

#### CORRESPONDENCE ASIIN SEAL AND AQU STANDARDS

Criterion - ASIIN seal		Estàndard-AQU Catalunya
<b>1</b>	<b>Degree programme: concept, content and implementation</b>	
1.1	Objectives and LO of a degree programme (intended qualifications profile)	[1.1] El perfil de competències de la titulació és consistent amb els requisits de la disciplina i amb el nivell formatiu corresponent al MECES. <i>Verificació</i> [1.2] El pla d'estudis i l'estructura del currículum són coherents amb el <b>perfil de competències</b> i amb els <b>objectius de la titulació</b> . <i>Verificació</i> [6.4] Els valors dels indicadors d'inserció laboral són adequats per a les característiques de la titulació. [2.1] La institució publica informació veraç, completa, actualitzada i accessible sobre les característiques de la titulació i el seu desenvolupament operatiu.
1.2	Title of the degree programme	[1.2] El pla d'estudis i l'estructura del currículum són coherents amb el perfil de competències i amb els objectius de la titulació. <i>Verificació</i>
1.3	Curriculum	[1.2] <b>El pla d'estudis</b> i l'estructura del currículum són coherents amb el perfil de competències i amb els objectius de la titulació. <i>Verificació</i> [3.1] El SGIQ implementat té processos que garanteixen el disseny, l'aprovació, el seguiment i l'acreditació de les titulacions.
1.4	Admission requirements	[2.1] La institució publica informació veraç, completa, actualitzada i accessible sobre les característiques de la titulació i el seu desenvolupament operatiu. [1.3] Els estudiants admesos tenen un perfil d'ingrés adequat per a la titulació i el seu nombre és coherent amb el nombre de places ofertes. [5.1] Els serveis d'orientació acadèmica suporten adequadament el procés d'aprenentatge i els d'orientació professionals faciliten la incorporació al mercat laboral.
	*****	[1.4] La titulació disposa de <b>mecanismes de coordinació docent</b> adequats.
<b>2</b>	<b>Degree programme: structures, methods and implementation</b>	
2.1	Structure and modules	[1.2] El pla d'estudis i l' <b>estructura del currículum</b> són coherents amb el perfil de competències i amb els objectius de la titulació. <i>Verificació</i> [6.1] Els resultats de l'aprenentatge assolits es corresponen amb els objectius formatius pretesos i amb el nivell del MECES de la titulació. [6.2] Les <b>activitats formatives, la metodologia docent</b> i el sistema d'avaluació són adequats i pertinents per garantir l'assoliment dels resultats de l'aprenentatge previstos. [1.5] L'aplicació de les diferents normatives es realitza de manera adequada i té un impacte positiu sobre els resultats de la titulació.
2.2	Work load and credits	[1.2] El pla d'estudis i l'estructura del currículum són coherents amb el perfil de competències i amb els objectius de la titulació. <i>Verificació</i>

2.3	Teaching methodology	[6.2] Les activitats formatives, la metodologia docent i el <b>sistema d'avaluació</b> són adequats i pertinents per garantir l'assoliment dels resultats de l'aprenentatge previstos.
2.4	Support and assistance	[5.1] Els serveis d' <b>orientació acadèmica</b> suporten adequadament el procés d'aprenentatge i els d'orientació professional faciliten la incorporació al mercat laboral.
<b>3</b>	<b>Exams: system, concept and organization</b>	
		[6.2] Les activitats formatives, la metodologia docent i el sistema d'avaluació són adequats i pertinents per garantir l'assoliment dels resultats de l'aprenentatge previstos.
	*****	[6.3] Els valors dels <b>indicadors acadèmics</b> són adequats per a les característiques de la titulació.
<b>4</b>	<b>Resources</b>	
4.1	Staff	[4.1] El professorat reuneix els requisits del nivell de qualificació acadèmica exigits per les titulacions del centre i té suficient i valorada experiència i valorada experiència docent, investigadora i, si escau, professional. [4.2] El professorat del centre és suficient i disposa de la dedicació adequada per desenvolupar les seves funcions i atendre els estudiants.
4.2	Staff development	[4.3] La institució ofereix suport i oportunitats per millorar la qualitat de l'activitat docent i investigadora del professorat.
4.3	Funds and equipment	[5.2] Els recursos materials disponible són adequats al nombre d'estudiants i a les característiques de la titulació.
<b>5</b>	<b>Transparency and documentation</b>	
	*****	[2.1] La institució publica informació veraç, completa, actualitzada i accessible sobre les característiques de la titulació i el seu desenvolupament operatiu.
5.1	Module descriptions	[2.1] La institució publica informació veraç, completa, actualitzada i accessible sobre les característiques de la titulació i el seu desenvolupament operatiu.
	*****	[2.2] La institució publica informació sobre els resultats acadèmics i de satisfacció.
	*****	[2.3] La institució publica el SGIQ en què s'emmarca la titulació i els resultats del seguiment i l'acreditació de la titulació.
5.2	Diploma and Diploma Supplement	<i>Verificació</i>
5.3	Relevant rules	[1.5] L'aplicació de les diferents normatives es realitza de manera adequada i té un impacte positiu sobre els resultats de la titulació.
<b>6</b>	<b>Quality management: Quality assessment and development</b>	
		[3.1] El SGIQ implementat té processos que garanteixen el disseny, l'aprovació, el seguiment i l'acreditació de les titulacions. [3.2] El SGIQ implementat garanteix la recollida d'informació i dels resultats rellevants per a la gestió eficient de les titulacions, en especial els resultats acadèmics i la satisfacció dels grups d'interès.
	*****	[3.3] El SGIQ implementat es revisa periòdicament i genera un pla de millora que s'utilitza per a la seva millora continua.

[See evidence Correspondence between ASIIN\_AQU criteria]

Each criterion is displayed transversely or specifically for each master degree (MQF, MQA and MCIEM), as appropriate. ASIIN's own requirements are not contemplated for the MCIEM.

All the evidences, classified according to the ASIIN-AQU Template, are available through the virtual platform <https://moodle.iqs.url.edu/login/index.php>

In order to facilitate the interpretation of the SAR, the wording of this report has been extended, including extracts translated into English from the material available in the evidences.

- **The aggregation of data has been analyzed in the meetings held on the following dates:**
  - October 10, 2017
  - November 22, 2017
  - December 21, 2017
  - January 9, 2018 (Dean, MQF-MQA-MCIEM Coordinators and QA Responsible)
  - January 19, 2018 (submission of the SAR and IST reports to the CAI)

On 22 January 2018, first version of SAR has been submitted to AQU Catalunya.

The present report constitutes the evidence of the analysis of the data and processes carried out with the purpose of responding, in an integrative way, to the standards of accreditation and to base a good improvement plan. The high involvement of all interest groups is valued very positively. This fact has been decisive for the fulfilment of deadlines.

- **Public presentation of the self-report**

This self-report will be on public display on the URL Web (bulletin board section: <http://www.url.edu/comunidad-universitaria>) from 26 February to 2 March, 2018, for validation by all the university community.

The public presentation of the Self-Report will be communicated by the Dean to the members of the CAI, professors and PAS of IQS the public exhibition of the document and the web link to access it.

- **Final validation of the self-report and submission to AQU Catalunya**

During the period of public exposure, some comments and suggestions have been received (for example, xxxxx). Once valued, the different contributions will be incorporated into this report.

The Self-Report will be validated by the IQS Center Council and sent to AQU Catalunya on 5 March 2018 through the platform <https://avalua.aqu.cat>

## A About the Accreditation Procedure

- **General Data**

<b>Website of the Higher Education Institution</b>	<a href="http://www.iqs.edu/en">http://www.iqs.edu/en</a>
<b>Faculty/Department offering the Degree Programme</b>	IQS School of Engineering

- **Seals applied for**

<b>Name of the degree programme (in original language)</b>	<b>(Official) English translation of the name</b>	<b>Labels applied for<sup>1</sup></b>	<b>Previous accreditation (issuing agency, validity)</b>	<b>Involved Technical Committees (TC)<sup>2</sup></b>  (will be completed by ASIIN)
Master Universitario en Química Farmacéutica	University Master's Degree in Pharmaceutical Chemistry	ASIIN / Euromaster® Label  AQU Catalunya		
Master Universitario en Química Analítica	University Master's Degree in Analytical Chemistry	ASIIN / Euromaster® Label  AQU Catalunya		
Master Universitario en Ciencia e Ingeniería de Materiales	University Master's Degree in Materials Science and Engineering	AQU Catalunya		

<sup>1</sup> [delete as necessary] ASIIN Seal for degree programmes; EUR-ACE® Label: European Label for Engineering Programmes; Euro-Inf®: Label European Label for Informatics; Eurobachelor®/Euromaster® Label: European Chemistry Label

<sup>2</sup> TC: Technical Committee for the following subject areas: TC 01 - Mechanical Engineering/Process Engineering; TC 02 - Electrical Engineering/Information Technology; TC 03 - Civil Engineering, Geodesy and Architecture; TC 04 - Informatics/Computer Science; TC 05 - Physical Technologies, Materials and Processes; TC 06 - Industrial Engineering; TC 07 - Business Informatics/Information Systems; TC 08 - Agriculture, Nutritional Sciences and Landscape Architecture; TC 09 - Chemistry; TC 10 - Life Sciences; TC 11 - Geosciences; TC 12 - Mathematics; TC 13 - Physics.



## B Characteristics of the Degree Programmes

a) Name	Final degree (original/English translation)	b) Areas of Specialization	c) Corresponding level of the EQF <sup>3</sup>	d) Mode of Study	e) Double/Joint Degree	f) Duration	g) Credit points/unit	h) Intake rhythm & First time of offer
Master Universitario en Química Farmacéutica	M.Sc.	Pharmaceutical Chemistry	Level 7	Full time	No	3 Semesters	90 ECTS	2014-2015 academic year
Master Universitario en Química Analítica	M.Sc.	Analytical Chemistry	Level 7	Full time	No	3 Semesters	90 ECTS	2014-2015 academic year
Master Universitario en Ciencia e Ingeniería de Materiales	M.Sc.	Material Sciences and Engineering	Level 7	Full time	No	3 Semesters	90 ECTS	2014-2015 academic year

<sup>3</sup> EQF = The European Qualifications Framework for lifelong learning

## C Self-assessment for the ASIIN-Seal<sup>4</sup>

### 1. The Degree Programme: Concept, content & implementation

#### **Criterion 1.1 Objectives and learning outcomes of a degree programme (intended qualifications profile)**

The objectives and learning outcomes of the degree programme (i.e. the intended qualifications profile) are described in a brief and concise way. They are well-anchored, binding and easily accessible to the public, i.e. to students, teaching staff and anyone else interested.

The aims and learning outcomes:

→ reflect the level of academic qualification aimed at, and are equivalent to the learning outcome examples described in the respective ASIIN Subject-Specific Criteria (SSC);

→ are viable and valid;

→ are analysed on a regular basis and developed further if necessary.

The intended qualifications profile allows the students to take up an occupation which corresponds to their qualification (professional classification).

The relevant stakeholders were included in the process of formulating and further developing the objectives and learning outcomes.

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<sup>4</sup> Includes the assessment for the European subject-specific seals, where applicable. When the accreditation process is finalized, possible requirements and/or recommendations and also deadlines apply to the ASIIN seal as well as to the subject-specific seals.

University Master's Degree in Pharmaceutical Chemistry (MQF), University Master's Degree in Analytical Chemistry (MQA) and University Master's Degree in Materials Science and Engineering (MCiEM) is the result of the remodeling of the University Master's Degree in Chemistry of the *Universitat Ramon Llull*, which was validated by the *Comisión de Verificación y Acreditación de Planes de Estudios del Consejo de Universidades* (CU) at its meeting on September 19<sup>th</sup>, 2012 and which started during the year 2012-2013.

Such University Master's Degree in Chemistry was conceived with three specialties: Pharmaceutical Chemistry, Analytical Chemistry and Materials Science. It was designed to optimize resources to be able to establish 30 common ECTS among the three specialties (Fundamental Module and Management Module). However, although the opinion of the expert panel consulted at the time was favorable to this design, since the beginning of publicizing the Master in Chemistry it was observed that was not attractive for the potential students a Master in Chemistry as continuation of a Bachelor Program in Chemistry. Master students, apparently, seek a greater degree of specialization.

Once the decision to separate the three specialties of the University Master's Degree in Chemistry in three individualized University Master's Degrees was taken, the process for creating the University Master's Degree in Pharmaceutical Chemistry (MQF), University Master's Degree in Analytical Chemistry (MQA) and University Master's Degree in Materials Science and Engineering (MCiEM) described below was followed and the validation of such remodeling through consultation with stakeholders was performed.

**The profile of the competencies of the degree is consistent with the requirements of the discipline and with the educational level correspondent to the MECES. [AQU Ex-ante assessment process, AQU STD 1.1].**

AQU 2014 Ex-ante assessment for MQF, MQA and MCiEM with a favorable result and the subsequent AQU 2016-monitoring (ISC report submitted as a requirement of MCiEM ex-ante assessment process) provide evidence that the profile of competences is consistent with the requirements of the discipline and with the educational level of the MECES.

Proposals for recognized programs (MQF, MQA and MCiEM *Memorandum reports*) and the related AQU or CU review reports are included as evidences

[See evidence 1-a and 1-b, MQF-MQA-MCiEM]

The description of the process for developing the intended competence profile of the degree programme is included in Quality Assurance Manual – D2: Quality assurance of degree programs / *Garantía de calidad de los Programas formativos*).

[See evidence 1-c, Process description]

## MQF

The design process and approval of the University Master's Degree in Pharmaceutical Chemistry (MQF), involving teaching staff and students' participation, is summarized below:

1. Identification of the need to develop or revise a curriculum
  - Evaluation of the desirability of reviewing the offer of master's degrees in meetings of the Strategic Plan (26/09/2012)
  - Designation of the Coordinators of three Master's Degrees (Pharmaceutical Chemistry, Analytical Chemistry and Materials Science) with general statement made by the IQS Managing Director (01/02/2013)
  - Assessment of the proposed MQF by the IQS General Management and designation of the Commission for the master design (15/02/2013)
  - Presentation to the Board of Trustees and approval (15/03/2013)
2. Process Planning
  - Planning Meeting of the Master's Committee with participation of the Dean.
  - Planning and conducting internal consultations
  - Planning consultations with stakeholders and industry professionals
3. Preparation of the proposed Curriculum
  - Preparation of the MQF summary sheet (15/03/ 2013-15/04/2013)
  - Approval by the IQS General Management of the summary sheet with the proposed University Master's Degree in Pharmaceutical Chemistry of the Universitat Ramon Llull (19/04/2013)
  - Presentation and approval of a summary sheet by the IQS School of Engineering Academic Board (13/05/2013)
  - Model validation by stakeholders (June 2013)
  - Meeting with students of the University Master's Degree in Chemistry, Specialty in Pharmaceutical Chemistry (13/06/2013)
4. Approval of the Curriculum
  - Approval of the University Master's Degree *in Pharmaceutical Chemistry* of the *Universitat Ramon Llull* by the Academic Board of the IQS-SE and the Government Board of the URL (16/05/2013).

MQF is structured in 90 ECTS (see Table C1-1).

Table C1-1. MQF structure				
Module	ECTS	Semester		
		1	2nd	3rd
M1 Transversal Module	10			
M2 Drug Research Module	20			
M3 Drug Production Module	20			
M4 Module of Elective Matters	10			
M5 Master Thesis	30			
Total	90	30	30	30

MQF is aimed primarily at graduates in Chemistry, with the different possible denominations of such studies. They can also access graduates in related studies such as Chemical Engineering or similar with previous Bridging Courses Supplements (*Complementos Formativos*).

MQF is oriented to produce graduates with an advanced level of knowledge and open doors of companies and leading research centers not only in Spain but in all countries participating in the European Higher Education Area (EHEA). In this sense, the objective of MQF is to train professionals and researchers with a profile applied to research and development of products, processes and services in the pharmaceutical industry. These professionals and researchers must have the following characteristics:

- Advanced knowledge of the different disciplines of Pharmaceutical Chemistry enabling them to identify and reasoning problems, develop and implement original ideas and integrate new knowledge throughout their professional lives.*
- Domain of chemical and management tools for research, development and production of drugs.*
- Knowledge of the pharmaceutical industry and new trends in the use of Pharmaceutical Chemistry.*
- Skills in managing knowledge and ability to lead projects in the pharmaceutical field*

Therefore, graduates of MQF can work professionally in various industries, in positions of academic and industrial research, development and production in the pharmaceutical, biomedical industry and related sectors. MQF gives access to doctoral programs.

MQF Students will be able to:

#### Basic competences

CB6 - Have and understand knowledge which provides the ground or opportunity to be innovative in the development and/or application of ideas, often in a research context

- CB7 - Apply their knowledge and their ability to solve problems in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field of study
- CB8 - Integrate knowledge and deal with the complexity of formulating judgments based on information which, being incomplete or limited, includes reflections on social and ethical responsibilities related to the application of their knowledge and judgments
- CB9 - Communicate conclusions, and the reasons that sustain them, to specialized and non-specialized audiences in a clear and unambiguous way.
- CB10 - Understand the need for life-long learning in a self-directed or autonomous way.

MQF-General competences

- CG1 - Ability to lead, direct and manage projects in academic or business environments adapting to the structures, needs and ways of operation of each institution
- CG2 - Ability to perform a responsible practice of the profession

MQF-Specific competences

- E1 - Demonstrate knowledge of the phases of the R&D of a drug, the main therapeutic groups and the pharmaceutical, pharmacokinetics phases and pharmacodynamics of a drug and apply in pharmaceutical chemistry
- E2 - Ability to associate the structure of drugs with their molecular mechanism of action, therapeutic activity and metabolism
- E3 - Demonstrate knowledge about patents in the pharmaceutical sector, its implications and application in drug development
- E4 - Demonstrate knowledge of project management and tools for planning, implementation and monitoring of projects for application in pharmaceutical chemistry
- E5 - Ability to define tasks, assign resources, define costs and track a project
- E6 - Demonstrate knowledge of the techniques of computer-aided molecular design for application in drug research
- E7 - Ability to raise, discern and apply advanced computer simulation techniques and use them to design compounds with biological activity
- E8 - Demonstrate knowledge of retrosynthetic analysis and new reactions and synthetic methodologies for application in drug research
- E9 - Ability to develop synthetic routes for multifunctional organic molecules by applying the "back step" method
- E10 - Demonstrate advanced knowledge of NMR, X-ray diffraction and thermal analysis for application in drug research
- E11 - Ability to interpret the results obtained with NMR, X-ray diffraction and thermal analysis to identify and determine the structure of chemical compounds

- E12 - Ability to apply different computational, synthetic and spectroscopic techniques related to drug research
- E13 - Demonstrate knowledge of the development of synthetic processes on an industrial scale to be applied in the production of drugs
- E14 - Ability to select synthetic routes amenable to industrialization taking into account economic, environmental and safety aspects
- E15 - Demonstrate advanced knowledge of analytical methods for raw materials, formulated products, active substances, excipients, impurities and degradation products enantiomers present in samples in the pharmaceutical field for application in the production of drugs
- E16 - Ability to interpret the analytical results obtained on samples of the pharmaceutical sector (raw materials, formulated products, active substances, excipients) and the determination of impurities and degradation products enantiomers in that type of samples
- E17 - Demonstrate knowledge of the concepts and tools for quality management in laboratories and industry for application in the production of drugs
- E18 - Ability to lead, direct and manage projects in chemistry contemplating the requirements of a quality system
- E19 - Ability to apply different synthetic, spectroscopic and analytical related to drug production techniques taking into account the implications of GLP / GMP environment and the ICH standards and pharmacopoeia in drug analysis
- E20 - Demonstrate complementary skills useful for the practice of pharmaceutical chemistry
- E21 - Ability to recognize or related in some way with the practice of pharmaceutical chemistry that will be useful for the development of professional practice related disciplines
- E22 - Ability to plan, implement, manage and present a research project in the field of Pharmaceutical Chemistry
- E23 - Ability to develop activities of fundamental and applied research and innovation in academic and industrial environments by integrating projects and interdisciplinary activities
- E24 - Ability to apply and integrate advanced knowledge of the disciplines of Pharmaceutical Chemistry in the realization of a project of fundamental research or applied
- E25 - Ability to apply advanced chemical methodologies and tools for research, development and production of products and services in the field of Pharmaceutical Chemistry
- E26 - Ability to design, perform and interpret experiments in the field of Pharmaceutical Chemistry

E27 - Ability to obtain original results susceptible of being published and/or patented

MQF-Transversal competences

T1 - Ability to communicate in English and use English as a working language

T2 - Ability to lead and direct teams

T3 - Ability to assess the impact of the use of chemistry in sustainable development of society

## MQA

The design process and approval of the University Master's Degree in Analytical Chemistry (MQA), involving teaching staff and students' participation, is summarized below:

### 1. Identification of the need to develop or revise a curriculum

- Evaluation of the desirability of reviewing the offer of master's degrees in meetings of the Strategic Plan (26/09/2012)
- Designation of the Coordinators of three Master's Degrees (Pharmaceutical Chemistry, Analytical Chemistry and Materials Science) with general statement made by the IQS Managing Director (01/02/2013)
- Assessment of the proposed MQA by the IQS General Management and designation of the Commission for the master design (15/02/2013)
- Presentation to the Board of Trustees and approval (15/03/2013)

### 2. Process Planning

- Planning Meeting of the Master's Committee with participation of the Dean.
- Planning and conducting internal consultations
- Planning consultations with stakeholders and industry professionals

### 3. Preparation of the proposed Curriculum

- Preparation of the MQA summary sheet (15/03/ 2013-15/04/2013)
- Approval by the IQS General Management of the summary sheet with the proposed University Master's Degree in Analytical Chemistry of the Universitat Ramon Llull (19/04/2013)
- Presentation and approval of a summary sheet by the IQS-SE Academic Board (13/05/2013)
- Model validation by stakeholders (June 2013)

### 4. Approval of the Curriculum

- Approval of the University Master's Degree in Analytical Chemistry of the *Universitat Ramon Llull* by the Academic Board of the IQS-SE and the Government Board of the URL (16/05/2013).



MQA is structured in 90 ECTS (see Table C1-2)

Table C1-2. MQA structure				
Module	ECTS	Semester		
		1st	2nd	3rd
M1 Technological Module	25			
M2 Management Module	10			
M3 Specific Module	25			
M4 Master's Thesis	30			
Total	90	30	30	30

The prospective students of the MQA are mainly graduates in Chemistry or equivalent studies. The objective of MQA is to train professionals and researchers with a profile applied to research and development of products, processes and services in different industrial sectors related with the analytical chemistry. These professionals and researchers must have the following characteristics:

- Advanced knowledge of the different disciplines of Analytical Chemistry, with particular incidence in the environmental, food, pharmaceutical and industrial areas, which allow them to identify and discuss on problems, develop and apply original ideas and integrate new knowledge during their professional life
- Knowledge of chemical and management tools for research, development and production of chemical products and services
- Knowledge of the industrial sectors and new trends in the use of analytical chemistry
- Skills in Knowledge Management and ability to lead projects

MQA graduates can work in several industrial sectors, in positions of academic or industrial research, development and production in chemical, food, environmental, pharmaceutical, diagnosis, materials, biomedicine industries, among other sectors. MQA graduates can access directly to doctoral programs.

MQA students will acquire the following competences:

#### Basic competences

- CB6 - Have and understand knowledge which provides the ground or opportunity to be innovative in the development and/or application of ideas, often in a research context
- CB7 - Apply their knowledge and their ability to solve problems in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field of study

CB8 - Integrate knowledge and deal with the complexity of formulating judgments based on information which, being incomplete or limited, includes reflections on social and ethical responsibilities related to the application of their knowledge and judgments

CB9 - Communicate conclusions, and the reasons that sustain them, to specialized and non-specialized audiences in a clear and unambiguous way.

CB10 - Understand the need for life-long learning in a self-directed or autonomous way.

General competences

CG1 - Ability to lead, direct and manage projects in academic or business environments adapting to the structures, needs and ways of operation of each institution

CG2 - Ability to perform a responsible practice of the profession

Specific competences

E1 - Demonstrate advanced knowledge of NMR, X-ray diffraction and thermal analysis for designing, applying and interpreting analytical methods.

E2 - Ability to interpret the results obtained with NMR, X-ray diffraction and thermal analysis to identify and determine the structure of chemical compounds

E3- Demonstrate advanced knowledge of gas chromatography, liquid chromatography, mass spectrometry and electrophoretic techniques for designing, applying and interpreting analytical methods.

E4 - Ability to interpret the results obtained with chromatographic, electrophoretic techniques and mass spectrometry in the identification and quantitative determination of chemical compounds

E5- Demonstrate advanced knowledge of atomic and molecular spectroscopies, voltamperometry, voltammetry and other advanced electrochemical techniques for designing, applying and interpreting analytical methods.

E6 - Ability to interpret the results obtained with advanced techniques of atomic and molecular spectroscopies, voltamperometry, voltammetry and other advanced electrochemical techniques in the quantitative determination of chemical compounds detected in samples.

E7- Demonstrate advanced knowledge of statistical techniques, design of experiments and process optimization for designing and developing analytical methods.

E8 - Ability to interpret the results obtained applying statistical techniques, design of experiments and process optimization methods to experimental data obtained in an analytical chemistry laboratory

E9 - Demonstrate knowledge of project management and tools for planning, implementing and monitoring projects

E10 - Ability to define tasks, assign resources, define costs and monitoring a project

- E11 - Demonstrate knowledge of Quality Management concepts and tools for its application to analysis laboratories and industry in general
- E12 - Ability to lead, direct and manage projects in chemistry according to the requirements of a quality system
- E13- Demonstrate advanced knowledge of analytical methods for determining the composition of environmental samples (air, water, soil, sediments, waste, ...), for identifying and quantifying pollutants in these samples, as well as of specific analytical techniques for the environment.
- E14 - Ability to interpret the analytical results obtained in environmental samples (air, water, soil, sediments, waste, ...) and of pollutants detected in these samples
- E15 - Demonstrate advanced knowledge of analytical methods for the characterization of raw materials, formulated products, active pharmaceutical ingredients and excipients, and the identification and quantification of impurities, enantiomers and degradation products present in pharmaceutical samples
- E16 - Ability to interpret the analytical results obtained in pharmaceutical samples (raw materials, formulated products, active pharmaceutical ingredients, excipients) and in the determination of impurities, enantiomers and degradation products in these samples
- E17 - Demonstrate advanced knowledge of analytical methods for determining composition and functional properties of food, and for identifying and quantifying impurities, foreign substances and residues in samples of food and agricultural products.
- E18 - Ability to interpret the analytical results obtained in food samples (composition and functional properties) as well as and in the identification and quantification of impurities, foreign substances and residues in these samples.
- E19 - Demonstrate advanced knowledge of analytical methods for the determination of majority and minority components, impurities and functional properties in raw materials, metals, polymers, ceramics and formulated products as wells as of specific analytical techniques for these types of samples.
- E20 - Ability to interpret the analytical results obtained in samples of raw materials, metals, polymers, ceramics and formulated products obtained with general analytical techniques or specific for these types of samples.
- E21 - Ability to plan, implement, manage and present a research project in the Analytical Chemistry field
- E22 - Ability to develop activities of fundamental and applied research and of innovation in academic and industrial environments integrating projects and interdisciplinary activities
- E23 - Ability to apply and integrate advanced knowledge of the Analytical Chemistry disciplines in the realization of a project of fundamental or applied research

E24 - Ability to apply advanced chemical methodologies and tools for research, development and production of products and services in the Analytical Chemistry field

E25 - Ability to design, perform and interpret experiments in the Analytical Chemistry field

E26 - Ability to obtain original results susceptible of being published

Transversal competences

T1 - Ability to communicate in English and use English as a working language

T2 - Ability to lead and direct teams

T3 - Ability to assess the impact of the use of chemistry in the sustainable development of the society

**The syllabus and structure of the curriculum are consistent with the profile of competences and with the objectives of the degree. [AQU Ex-ante assessment process, AQU STD 1.2]**

The verification of the Master's degrees (MQF, MQA, MCiEM) and the subsequent return during monitoring (in particular related to MCiEM) provide evidence that the syllabus and structure of the curriculum are consistent with the profile of competences and with the objectives of the degree.

[See evidence 1-b, Ex-ante assessment and Monitoring review reports MQF-MQA-MCiEM]

MQF, MQA and MCiEM competences agree with the MECES-4 level (Master's Degree Level) of the *Marco Español de Cualificaciones para la Educación Superior* (MECES) (Spanish Framework for Higher Education Qualification), which correspond to the Second Cycle of the Qualifications Frameworks in the European Higher Education Area (EHEA).

[See evidence 1-d, Study plan / Module descriptions MQF-MQA-MCiEM]

Internal records that document the participation of the different stakeholders in the Degree Program Design are shown as evidences.

[See evidence 1-e, Internal records MQF-MQA-MCiEM]

## Correlation of the competence profile with the sample learning outcomes from the Subject-Specific Criteria (SSC)

ASIIN classifies the competencies of a Master in two groups: Specialist Competences and Social Competences. In this report, a code has been assigned to each of these ASIIN competences. Thus, the 5 Specialist competences are coded as SP1 to SP5 while the 5 Social competences are coded as SO1 to SO5.

### MQF

Table C1-3 shows the correlation between the Competence profile of MQF and the ASIIN Subject-Specific Criteria (SSC) (Objectives-Module-Matrix for MQF).

There is a good correlation. To facilitate comparison the keywords that allow correlation are highlighted in bold. Moreover, there is no Subject-Specific Criteria (SSC) that does not correspond with the MQF skills. No differences to the Relevant Subject-Specific Criteria (SSC) are observed.

### MQA

Table C1-4 shows the correlation between the Competence profile of the Master in Analytical Chemistry (MQA) and the ASIIN Subject-Specific Criteria (SSC) (Objectives-Module-Matrix for MQA).

There is a good correlation. To facilitate comparison the keywords that allow correlation are highlighted in bold. Moreover, there is no Subject-Specific Criteria (SSC) that does not correspond with the MQA skills. No differences to the Relevant Subject-Specific Criteria (SSC) are observed.

[See evidence 1-f, Objectives-Module-Matrix MQF-MQA]

### MCiEM

For MCiEM, this correlation has not been included in this criterion.

Table C1-3. Objectives-Module Matrix for MQF		
	ASIIN SSC	Intended Learning Outcomes[1] of the Degree Programme
Code	Specialist Competences	
	Graduates	
SP1	have deepened their <b>knowledge</b> in core subjects, special subjects or interdisciplinary subjects;	E1 - Demonstrate <b>knowledge</b> of the phases of the R&D of a drug, the main therapeutic groups and the pharmaceutical, pharmacokinetics phases and pharmacodynamics of a drug and apply in pharmaceutical chemistry
		E3 - Have <b>knowledge</b> about patents in the pharmaceutical sector, its implications and application in drug development
		E4 - Demonstrate <b>knowledge</b> of project management and tools for planning, implementation and monitoring of projects for application in pharmaceutical chemistry
		E6 - Demonstrate <b>knowledge</b> of the techniques of computer-aided molecular design for application in drug research
		E8 - Demonstrate <b>knowledge</b> of retrosynthetic analysis and new reactions and synthetic methodologies for application in drug research
		E10 - Demonstrate advanced <b>knowledge</b> of NMR, X-ray diffraction and thermal analysis for application in drug research
		E13 - Demonstrate <b>knowledge</b> of the development of synthetic processes on an industrial scale to be applied in the production of drugs
		E15 - Demonstrate advanced <b>knowledge</b> of analytical methods for raw materials, formulated products, active substances, excipients, impurities and degradation products enantiomers present in samples in the pharmaceutical field for application in the production of drugs
		E17 - Demonstrate <b>knowledge</b> of the concepts and tools for quality management in laboratories and industry for application in the production of drugs
SP2	have knowledge building up on a Bachelor's degree level in chemistry, which forms a basis for original and competent development and <b>implementation of ideas within a research area</b> and	CB6 - Have and understand knowledge which provides the ground or opportunity for originality in developing and/or <b>applying ideas, often in a research context</b>
SP3	have competences qualifying them <b>professionally</b> , e.g. to work as a chemist in industry or public service.	CB10 - Understand the need for life-long learning in a self-directed or autonomous way
		CG2 - Ability to perform a responsible practice of the profession
		T3 - Ability to assess the impact of the use of chemistry in sustainable development of society

	Such graduates are able to	
SP4	carry out <b>independent scientific work</b> as well as	E22 - Ability to plan, implement, manage and present a research project in the field of Pharmaceutical Chemistry
		E23 - Ability to develop activities of fundamental and applied research and innovation in academic and industrial environments by integrating projects and interdisciplinary activities
		E24 - Ability to apply and integrate advanced knowledge of the disciplines of Pharmaceutical Chemistry in the realization of a project of fundamental research or applied
		E25 - Ability to apply advanced chemical methodologies and tools for research, development and production of products and services in the field of Pharmaceutical Chemistry
		E26 - Ability to design, perform and interpret experiments in the field of Pharmaceutical Chemistry
		E27 - Ability to obtain original results susceptible of being published and/or patented
SP5	apply their knowledge and understanding, in order to <b>solve problems</b> in new and unaccustomed situations, involving broader (or multidisciplinary) issues.	E2 - Ability to associate the structure of drugs with their molecular mechanism of action, therapeutic activity and metabolism
		E5 - Ability to define tasks, assign resources, define costs and track a project
		E7 - Ability to raise, discern and apply advanced computer simulation techniques and use them to design compounds with biological activity
		E9 - Ability to develop synthetic routes for multifunctional organic molecules by applying the "back step" method
		E11 - Ability to interpret the results obtained with NMR, X-ray diffraction and thermal analysis to identify and determine the structure of chemical compounds
		E12 - Ability to apply different computational, synthetic and spectroscopic techniques related to drug research
		E14 - Ability to select industrializable synthetic routes taking into account economic, environmental and safety aspects
		E16 - Ability to interpret the analytical results obtained on samples of the pharmaceutical sector (raw materials, formulated products, active substances, excipients) and the determination of impurities and degradation products enantiomers in that type of samples
		E18 - Ability to lead, direct and manage projects in chemistry contemplating the requirements of a quality system
		E19 - Ability to apply different synthetic, spectroscopic and analytical related to drug production techniques taking into account the implications of GLP / GMP environment and the ICH standards and pharmacopoeia in drug analysis
		E20 - Demonstrate complementary skills useful for the practice of pharmaceutical chemistry

		E21 - Ability to recognize or related in some way with the practice of pharmaceutical chemistry that will be useful for the development of professional practice related disciplines
		CB7 - That the students can apply their knowledge and their ability to <b>solve problems</b> in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field of study
	<b>Social Competences</b>	
	Graduates	
<b>SO1</b>	have acquired a capacity to carry out independent scientific work and to organise, conduct and <b>lead more complex projects</b> ;	CG1 - Ability to <b>lead, direct and manage projects</b> in academic or business environments adapting to the structures, needs and ways of operation of each institution
<b>SO2</b>	have acquired scientific, technical and social competences (abstraction ability, systems analytical thinking, capacity for teamwork, <b>ability to communicate</b> , international and intercultural experience etc.), and are therefore prepared to take on <b>leadership responsibility</b> ;	CB9 - Communicate conclusions, and the reasons that sustain them, to specialized and non-specialized audiences in a clear and unambiguous way
		T1 - Ability to communicate in English and use English as a working language
		T2 - Ability to <b>lead and direct teams</b>
<b>SO3</b>	can combine and <b>independently</b> apply specialised knowledge in various component disciplines, in order to organise, work on and manage complex problems;	CB7 - Apply their knowledge and their ability to solve problems in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field of study
<b>SO4</b>	are also capable of <b>making decisions, based on incomplete or limited information</b> and	CB8 - <b>Integrate knowledge and deal with the complexity of formulating judgments based on information which, being incomplete or limited</b> , includes reflections on social and ethical responsibilities related to the application of their knowledge and judgments
<b>SO5</b>	take into account <b>ethical responsibility</b> in their decisions.	CB8 - Integrate knowledge and deal with the complexity of formulating judgments based on information which, being incomplete or limited, includes reflections on social and <b>ethical responsibilities</b> related to the application of their knowledge and judgments



Table C1-4. Objectives-Module Matrix for MQA		
	ASIIN SSC	Intended Learning Outcomes of the Degree Programme
Code	Specialist Competences	
	Graduates	
SP1	have deepened their <b>knowledge</b> in core subjects, special subjects or interdisciplinary subjects;	E1 - Demonstrate advanced knowledge of NMR, X-ray diffraction and thermal analysis for designing, applying and interpreting analytical methods.
		E3- Demonstrate advanced knowledge of gas chromatography, liquid chromatography, mass spectrometry and electrophoretic techniques for designing, applying and interpreting analytical methods.
		E5- Demonstrate advanced knowledge of atomic and molecular spectroscopies, voltamperometry, voltammetry and other advanced electrochemical techniques for designing, applying and interpreting analytical methods.
		E7- Demonstrate advanced knowledge of statistical techniques, design of experiments and process optimization for designing and developing analytical methods.
		E9 - Demonstrate knowledge of project management and tools for planning, implementing and monitoring projects
		E11 - Demonstrate knowledge of Quality Management concepts and tools for its application to analysis laboratories and industry in general
		E13- Demonstrate advanced knowledge of analytical methods for determining the composition of environmental samples (air, water, soil, sediments, waste, ...), for identifying and quantifying pollutants in these samples, as well as of specific analytical techniques for the environment.
		E15 - Demonstrate advanced knowledge of analytical methods for the characterization of raw materials, formulated products, active pharmaceutical ingredients and excipients, and the identification and quantification of impurities, enantiomers and degradation products present in pharmaceutical samples
		E17 - Demonstrate advanced knowledge of analytical methods for determining composition and functional properties of food, and for identifying and quantifying impurities, foreign substances and residues in samples of food and agricultural products.
		E19 - Demonstrate advanced knowledge of analytical methods for the determination of majority and minority components, impurities and functional properties in raw materials, metals, polymers, ceramics and formulated products as well as of specific analytical techniques for these types of samples.
SP2	have knowledge building up on a Bachelor's degree level in chemistry, which forms a basis for original and competent development and <b>implementation of ideas within a research area</b> and	CB6 - Have and understand knowledge which provides the ground or opportunity for originality in developing and/or <b>applying ideas, often in a research context</b>

SP3	have competences qualifying them <b>professionally</b> , e.g. to work as a chemist in industry or public service.	CB10 - Understand the need for life-long learning in a self-directed or autonomous way
		CG2 - Ability to perform a responsible practice of the profession
		T3 - Ability to assess the impact of the use of chemistry in sustainable development of society
	Such graduates are able to	
SP4	carry out <b>independent scientific work</b> as well as	E21 - Ability to plan, implement, manage and present a research project in the Analytical Chemistry field
		E22 - Ability to develop activities of fundamental and applied research and of innovation in academic and industrial environments integrating projects and interdisciplinary activities
		E23 - Ability to apply and integrate advanced knowledge of the Analytical Chemistry disciplines in the realization of a project of fundamental or applied research
		E24 - Ability to apply advanced chemical methodologies and tools for research, development and production of products and services in the Analytical Chemistry field
		E25 - Ability to design, perform and interpret experiments in the Analytical Chemistry field
		E26 - Ability to obtain original results susceptible of being published
SP5	apply their knowledge and understanding, in order to <b>solve problems</b> in new and unaccustomed situations, involving broader (or multidisciplinary) issues.	E2 - Ability to interpret the results obtained with NMR, X-ray diffraction and thermal analysis to identify and determine the structure of chemical compounds
		E4 - Ability to interpret the results obtained with chromatographic, electrophoretic techniques and mass spectrometry in the identification and quantitative determination of chemical compounds
		E6 - Ability to interpret the results obtained with advanced techniques of atomic and molecular spectroscopies, voltamperometry, voltammetry and other advanced electrochemical techniques in the quantitative determination of chemical compounds detected in samples.
		E8 - Ability to interpret the results obtained applying statistical techniques, design of experiments and process optimization methods to experimental data obtained in an analytical chemistry laboratory
		E10 - Ability to define tasks, assign resources, define costs and monitoring a project
		E12 - Ability to lead, direct and manage projects in chemistry according to the requirements of a quality system
		E14 - Ability to interpret the analytical results obtained in environmental samples (air, water, soil, sediments, waste, ...) and of pollutants detected in these samples
		E16 - Ability to interpret the analytical results obtained in pharmaceutical samples (raw materials, formulated products, active pharmaceutical ingredients, excipients) and in the determination of impurities, enantiomers and degradation products in these samples

		<p>E18 - Ability to interpret the analytical results obtained in food samples (composition and functional properties) as well as and in the identification and quantification of impurities, foreign substances and residues in these samples.</p> <p>E20 - Ability to interpret the analytical results obtained in samples of raw materials, metals, polymers, ceramics and formulated products obtained with general analytical techniques or specific for these types of samples.</p> <p>CB7 - Apply their knowledge and their ability to solve problems in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field of study</p>
	<b>Social Competences</b>	
	Graduates	
SO1	have acquired a capacity to carry out independent scientific work and to organise, conduct and <b>lead more complex projects</b> ;	CG1 - Ability to <b>lead, direct and manage projects</b> in academic or business environments adapting to the structures, needs and ways of operation of each institution
SO2	have acquired scientific, technical and social competences (abstraction ability, systems analytical thinking, capacity for teamwork, <b>ability to communicate</b> , international and intercultural experience etc.), and are therefore prepared to take on <b>leadership responsibility</b> ;	<p>CB9 - Communicate conclusions, and the reasons that sustain them, to specialized and non-specialized audiences in a clear and unambiguous way</p> <p>T1 - Ability to communicate in English and use English as a working language</p> <p>T2 - Ability to <b>lead and direct teams</b></p>
SO3	can combine and <b>independently</b> apply specialised knowledge in various component disciplines, in order to organise, work on and manage complex problems;	CB7 - Apply their knowledge and their ability to solve problems in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field of study
SO4	are also capable of <b>making decisions, based on incomplete or limited information</b> and	CB8 - <b>Integrate knowledge and deal with the complexity of formulating judgments based on information which, being incomplete or limited</b> , includes reflections on social and ethical responsibilities related to the application of their knowledge and judgments
SO5	take into account <b>ethical responsibility</b> in their decisions.	CB8 - Integrate knowledge and deal with the complexity of formulating judgments based on information which, being incomplete or limited, includes reflections on social and <b>ethical responsibilities</b> related to the application of their knowledge and judgments

**The values of labor insertion indicators are adequate for the characteristics of the degree. [AQU STD 6.4]**

The intended qualifications profile allows the students to take up an occupation which corresponds to their qualification. IQS includes doctoral students as a situation of employability.

The information related to labor insertion is included in the annual monitoring reports (IST and ISC) and published in the IQS web:

#### MQF

The information on the employment situation of the MQF students who have presented the master thesis during the 2015-16 and 2016-17 academic years is shown in table C1-5:

<b>Table C1-5 – MQF employment situation</b>		
	<b>2015-2016</b>	<b>2016-2017</b>
Number of MQF students	10	15
TFM presented	10 (100%)	12 (80%)
Employed	8 (80%)	10 (83,3%)
No information	2 (20%)	2 (16,7%)
PhD	3 (30%)	4 (33,3%)
Pharmaceutical Industry	3 (30%)	2 (16,7%)
Other Industries	2 (20%)	2 (16,7%)

It should be noted that 30% of the MQF alumni are PhD students. This situation is related to the importance that pharmaceutical industry gives to PhD in order to contract people for R+D+i divisions.

#### MQA

The six MQA graduates during the 2016/17 academic year are employed: four have successfully joined positions directly related to Analytical Chemistry and the other two have enrolled in Doctorate. The two MQA graduates during the 2015/16 academic year were satisfactorily incorporated into the work world and occupy positions directly related to Analytical Chemistry.

#### MCiEM

All MCiEM graduates during the 2015/16 and 2016/17 academic year were satisfactorily incorporated into the work world.

[See evidence 2-j, IST/ISC Monitoring reports]

[See evidence 5-e, Public information (Quality system)]

Labor insertion survey is in process (see Criterion 6).

[See evidence 1-h=6-f, Surveys MQF-MQA-MCiEM]

**The institution publishes accurate, complete, up-to-date and accessible information on the characteristics of the degree program and its operational development. [AQU STD 2.1]**

The information on the characteristics of each degree program and its operational development is published in the MQF, MQA and MCiEM website:

MQF: <a href="https://www.iqs.edu/en/masters/master-pharmaceutical-chemistry">https://www.iqs.edu/en/masters/master-pharmaceutical-chemistry</a>
MQA: <a href="https://www.iqs.edu/en/masters/master-analytical-chemistry">https://www.iqs.edu/en/masters/master-analytical-chemistry</a>
MCiEM: <a href="https://www.iqs.edu/en/masters/master-materials-science-and-engineering">https://www.iqs.edu/en/masters/master-materials-science-and-engineering</a>

[See evidence 1-a, MQF-MQA-MCiEM]

See Criterion 1.3 Curriculum for Module descriptions as they are available to students and the teaching staff.

**Criterion 1.2 Name of the degree programme**

The degree programme name reflects the intended aims and learning outcomes as well as, fundamentally, the main course language.

[AQU Ex-ante assessment process, AQU STD 1.2]

[See evidence 1-e, Internal records MQF-MQA-MCIEM]

**MQF**

Chemistry is an area of strong presence in Catalonia, with a strong international character stimulated by government. There are also extensive educational offerings in this discipline, with a range of Bachelor degrees in chemistry on 5 Catalan universities (UB, UAB, URV, UdG, URL). The offer of Master studies in the area of chemistry is also wide. Moreover, the pharmaceutical industry is of great importance in the Catalan and Spanish chemical sector. In this regard, it is especially important to note that according to the 2016 Annual Report of *Farmaindustria* (<http://www.farmaindustria.es/>), in 2016 *Farmaindustria* had 166 associated laboratories, 86 (51.8%) of which are located in Catalonia. The strategic decision to direct the Master to the pharmaceutical industry is the reason for choosing the name of *Master in Pharmaceutical Chemistry*.

In Europe almost all universities offering Chemistry (university Bachelor degrees or *Bachelor of Science*, BSc) have Master's Degrees. In some cases they are general Master's Degrees (with specialties or without them), with professional or research orientation (known in the UK and Ireland as *Masters of Research*) and different durations (although the most common are 2 years long Master's Degrees following Bachelor programs of 3 years). The most common name for these Master's Degrees is Master of Science in Chemistry (MSc in Chemistry). In many cases, the specialties or fields or paths of said masters include in part the proposed profile for the *Master in Pharmaceutical Chemistry of Universitat Ramon Llull*. Note that in many countries the term Pharmaceutical Chemistry is used as a synonym of Medicinal Chemistry.

Until now no misunderstandings or wrong expectations by students or by employers have been observed due to the name of the Master's degree, on the contrary the name has attracted an increasing number of candidates in only three editions (the fourth edition has started in the present 2017 -2018 course) and has opened the doors of the pharmaceutical industry to our graduates.

## MQA

Chemistry is an area of strong presence in Catalonia, with a strong international character stimulated by public administrations. The educational offer in this discipline is wide, with Bachelor degrees in chemistry in 5 Catalan universities (UB, UAB, URV, UdG, URL). However, the offer of Master studies in the field of analytical chemistry is limited to:

- a) Master in Analytical Chemistry, Universidad de Barcelona (UB). It is a 60 ECTS Master (24 ECTS of theoretical subjects, 6 ECTS of experimental subjects and 30 ECTS of Master's Thesis) with compulsory and elective subjects.
- b) University Master's Degree in Applied Chromatographic Techniques, Universitat Rovira i Virgili (URV), Universidad de Girona (UdG) and Universidad Jaume I (UJI). It is a 60 ECTS Master (30 ECTS compulsory and 30 ECTS of Master's Thesis), focused on the formation of specialists in developing and applying methods using chromatographic techniques in different industrial sectors.

MQA. It is a 90 ECTS Master (90 ECTS compulsory and 30 ECTS of Master's Thesis). Its main objective is to train professionals and researchers with a profile applied to research and development of products, processes and services in different industrial sectors related with the analytical chemistry.

MQA offers more depth in the field of Analytical Chemistry which fits with the needs of the productive environment in our nearest geographical area as well as by the one defined by the countries of European Higher Education Area (EHEA).

Analytical Chemistry is a well-defined field of knowledge and expertise in Chemistry. The name of the master clearly defines the competences and capabilities that the students acquire during these studies.

Until now no misunderstandings or wrong expectations by students or employers have been observed due to the name of the Master's degree.

**Criterion 1.3 Curriculum**

The curriculum allows the students to achieve the intended learning outcomes in order to obtain the degree.

The overall objectives and intended learning outcomes for the degree programme are systematically substantiated and updated in its individual modules. It is clear which knowledge, skills and competences students will acquire in each module.

[AQU Ex-ante assessment process, AQU STD 1.2]

[See evidence 1-d, Study plan / Module descriptions MQF-MQA-MCiEM]

**MQF**

MQF has 90 ECTS which are distributed in the following types of courses:

TYPE OF SUBJECT	ECTS CREDITS
Compulsory	50
Elective	10
Master's Thesis	30
<b>Total</b>	<b>90</b>

The MQF structure in modules (see Table C1-1) is based on the grouping of materials by its transverse or specific content. Thus the Transversal Module contains knowledge needed in the various fields of pharmaceutical chemistry and it is included in the beginning of the Master (first half) together with the Drug Research Module. The Drug Production Module and Elective Subjects Module are developed in the second semester. Finally, the TFM is done during the third semester to be presented in public defense.

**M1. Transversal module:** This module of cross-content aims to give an overview of the whole R&D process of a drug (Pharmaceutical Chemistry) and provide the student with knowledge in technical project management in a company, from the definition of strategy and R+D+i organization to techniques to guide teams to the defined objectives (Project Management).

	COURSE	ECTS	TYPE
<b>M1</b> TRANSVERSAL MODULE	Pharmaceutical chemistry	5	compulsory
	Project management	5	
	TOTAL	10	

**M2. Drug Research module:** is intended to present to the student the necessary tools for the research of new drugs from the design phase and selection by computational chemistry (Molecular Design), the synthesis of candidate molecules presenting biological activity (Advanced Organic Synthesis) and spectroscopic techniques, spectrometric, thermal



analysis and X-ray diffraction used for identification and characterization of organic compounds (Identification and Structural Characterization). This module contains an experimental laboratory (Integrated Laboratory I) which develops at practical level the contents taught in theoretical subjects.

	COURSE	ECTS	TYPE
<b>M2 DRUG RESEARCH MODULE</b>	Molecular design	5	compulsory
	Advanced Organic Synthesis	5	
	Identification and Structural Characterization	5	
	Integrated Laboratory I	5	
	TOTAL	20	

**M3. Drug Production module:** aims to provide students with specific knowledge of the industrial production of drugs. Therefore it aims to provide chemical language, knowledge and principles of development of processes of organic synthesis on an industrial scale within the environment of the pharmaceutical industry (Process Chemistry), to equip students with the necessary tools to deal with a global analytical process of matrices of pharmaceutical origin (Drug Analysis), in an environment that favors management and quality assurance (Quality Management). This module contains an experimental laboratory (Integrated Laboratory II) that develops at a practical level the contents taught in theoretical subjects.

	COURSE	ECTS	TYPE
<b>M3 DRUG PRODUCTION MODULE</b>	Process Chemistry	5	compulsory
	Drug Analysis	5	
	Quality Management	5	
	Integrated Laboratory II	5	
	TOTAL	20	

**M4. Elective Subjects module:** It aims to complement the knowledge acquired in the previous modules by two electives. Such materials may come from the own catalog of this Master as well as other university master's degrees.

	COURSE	ECTS	TYPE
<b>M4 ELECTIVE SUBJECT MODULE</b>	elective 1	5	elective
	elective 2	5	
	TOTAL	10	

The catalog of electives courses of MQF includes, among others, the following:

- Photochemistry
- Pharmacology for Chemists
- Experimental Design
- Regulatory Affairs in the Pharmaceutical Industry
- Advanced Drug Delivery Systems

**M5. Master's Thesis Module:** An individual research project (TFM) is conducted in a research group under the tutelage of a professor of the Master. With the same academic guarantees, and always under the guidance of a Professor of the Master, the TFM may be carried out in other institutions, like other national or foreign universities, public and private research centers, or chemical industries with which the corresponding agreement has been signed. The work will lead to a written report and defense before an evaluation panel. The TFM is carried out in the third semester of the Master. Its ordinary duration is 6 months with the presentation and defense of work.

	SUBJECT	ECTS	TYPE
<b>M5</b> MASTER'S THESIS MODULE	Master's Research Work	30	Master's Thesis

The MQF teaching methodology is face-to-face, full-time studies for one academic year of 60 ECTS, followed by the completion of the 30 ECTS of TFM. In the first six months (October to January) modules M1 (Transversal module) and M2 (Drug Research Module) are taught with a dedication of 3 hours of lectures and seminars and 3 hours of laboratory practice each day. In the second semester (February to June) the M3 module (Drug Production Module) and M4 (Elective Subjects Module) are developed with the same dedication.

On the MQF website (<http://www.iqs.edu/en/masters/master-pharmaceutical-chemistry>) these modules are described, including the character, temporal unit, subjects that compose each module and their contents, competences, training activities, teaching methodology, learning outcomes and assessment systems.

The objectives of each module are designed so that students acquire during their studies the MQF Competences: Basic and general (CB6-CB10, CG1-CG2), specific (E1-E27) and transversal competences (T1-T3). Acquisition of the competences and their evaluation are distributed between different modules to form a coherent and feasible set for the student to achieve the objectives of the Master (see Table C1-5).

Table C1-5. Matrix of Competences – Modules (MQF)						
	Competences	M1 Transversal Module	M2 Drug Research Module	M3 Drug Production Module	M4 Elective Subjects Module	M5 Master Thesis Module
Basic and general competencies	CB6					
	CB7					
	CB8					
	CB9					
	CB10					
	CG1					
	CG2					
Specific competences	E1					
	E2					
	E3					
	E4					
	E5					
	E6					
	E7					
	E8					
	E9					
	E10					
	E11					
	E12					
	E13					
	E14					
	E15					
	E16					
	E17					
	E18					
	E19					
	E20					
	E21					
	E22					
	E23					
	E24					
	E25					
	E26					
	E27					
Transversal competences	T1					
	T2					
	T3					

## MQA

MQA has 90 ECTS credits, which are distributed in four modules (see Table C1-2) according to the following types of subjects:

SUBJECT TYPE	ECTS CREDITS
Compulsory	60
Master's Thesis	30
<b>Total</b>	<b>90</b>

**M1.** The Technological Module is focused to go in depth in the main analytical techniques, in identification and structural characterization and in the application of statistics to chemical analysis. This module also contains an Analytical Technology Laboratory that develops at a practical level the contents taught in the theoretical subjects.

MODULE	SUBJECT	TYPE	COURSE	ECTS
M1 TECHNOLOGICAL MODULE	Advanced Analytical Chemistry	Compulsory	Identification and Structural Characterization	5
			Advanced Chromatography	5
			Spectrophotometry and Electroanalysis	5
	Total Subject			15
	Statistics and Experimentation	Compulsory	Chemometrics	5
			Analytical Technology Laboratory	5
	Total Subject			10
TOTAL MODULE			25	

**M2.** The aim of the Management Module is to provide the student with knowledge in the techniques of project and laboratories management in a company (from the definition of the strategy and the organization of R + D + i to the techniques to guide the teams towards the defined objectives), and of the management and assurance of quality.

MODULE	SUBJECT	TYPE	COURSE	ECTS
M2 MANAGEMENT MODULE	Management	Compulsory	Management of projects and laboratories	5
			Quality and information management	5
TOTAL MODULE				10

**M3.** The aim of the Specific Module is to provide the student with specific knowledge directly related with the specialty of chemistry in which the Master is focused. The module consists of five compulsory subjects. The main matrices to which analytical processes apply are described. Thus, we work with the following matrices: food (Agrofood Analysis), pharmaceutical (Analysis of Pharmaceutical Products), environmental (Environmental Quality Analysis) and several other industrial matrices (Analysis of Industrial Products). The module is completed with the Integration and Analytical Specialization Laboratory, which integrates the experimentation relative to the other subjects of the module. It also allows to apply in a practical way the knowledge acquired in this module, to reinforce the knowledge in the diverse analytical techniques that the student knows by his Bachelor studies and that he has expanded in the Technological Module of this Master, and to work with different matrices.

	SUBJECT	TYPE	COURSE	ECTS
M3 SPECIFIC MODULE	Environmental, Food and Pharmaceutical Analysis	Compulsory	Environmental quality analysis	5
			Agrofood analysis	5
			Analysis of pharmaceutical products	5
	Total Subject			15
	Industrial and Experimental Analysis	Compulsory	Analysis of industrial products	5
			Integration and analytical specialization laboratory	5
	Total Subject			10
	TOTAL MODULE			25

**M4.** In the Master's Thesis Module an individual research project (TFM) is conducted in a research group under the direction of a professor of the Master. With the same academic guarantees, and always under the direction of a Professor of the Master, the TFM may be carried out in other institutions, like other national or foreign universities, public or private research centers, or chemical companies. In all these cases, an institutional agreement has been signed. The work will lead to a written report and a presentation in front of an evaluation committee. The TFM is carried out for 6 months in the third semester of the Master.

	SUBJECT	ECTS	TYPE
<b>M4</b> MASTER'S THESIS	Master's Thesis	30	Master's Thesis

The structure of the Master in Modules is based on the grouping of subjects by their transversal or specific contents. Thus, the Technological Module, based on the main analytical techniques, is taught during the first semester of the Master, while the Specific Module, dedicated to the study of the main types of matrices, is developed in the second semester. The Management Module, based on non-technical complements, is taught in the first and second semesters. Finally, the Master's Thesis is carried out during the third semester.

The MQA is face-to-face with full dedication to the studies during one academic year for the 60 ECTS credits, followed by the completion of the Master's Thesis of 30 ECTS. In the first semester (October-January) the Module M1 (Technological Module) and partially the Module M2 (Management Module) are taught. In the second semester (February-June) part of Module M2 (Management Module) and totally Module M3 (Specific Module) are developed. In both semesters, 3 hours a day are dedicated to theory sessions and seminars and 3 hours a day to laboratory practices. Finally, Module M4 (Master's Thesis) is held in the third semester and is developed full-time in a research group.

On the MQA website (<https://www.iqs.edu/en/masters/master-analytical-chemistry>) these modules are described, including the character, temporal unit, subjects that compose each module and their contents, competences, training activities, teaching methodology, learning outcomes and assessment systems.

The objectives of each module are designed so that students acquire during their studies the MQA Competences: Basic and general (CB6-CB10, CG1-CG2), specific (E1-E26) and transversal competences (T1-T3). The acquisition of the competences and their evaluation are distributed among different modules to form a coherent and feasible set for the student to achieve the objectives of the Master (see Table C1-6).

Table C1-6. Matrix of Competences – Modules (MQA)					
	Competences	M1 Technological Module	M2 Management Module	M3 Specific Module	M4 Master's Thesis
Basic and General Competences	CB6				
	CB7				
	CB8				
	CB9				
	CB10				
	CG1				
	CG2				
Specific Competences	E1				
	E2				
	E3				
	E4				
	E5				
	E6				
	E7				
	E8				
	E9				
	E10				
	E11				
	E12				
	E13				
	E14				
	E15				
	E16				
	E17				
	E18				
	E19				
	E20				
	E21				
	E22				
	E23				
	E24				
	E25				
	E26				
Transversal Competences	T1				
	T2				
	T3				

**The implemented QA System has processes that guarantee the design, approval, monitoring and accreditation of degrees. [AQU STD 3.1]**

The Manual of the Quality Assurance System (QAS) of IQS-SE (*Universitat Ramon Llull*) was presented to AQU for its evaluation in the AUDIT 2009 program and valued positively on April 22, 2010 (see Criterion 5 and Criterion 6).

The processes that guarantee the quality of the training programs are included in the D2 of the MSGIQ-IQS (MSGIQ-IQS-D2\_v3). This guideline was updated in 2014 to incorporate the accreditation process of official degrees.

[See evidence 1-c, Process description]

Table C1-7 summarizes the most relevant aspects that allow to assess the degree of compliance with the design process, approval, monitoring and accreditation of degrees. The table summarizes the agents involved, the responsibilities set out in MSGIQ-IQS-D2 Guideline and the evidences that support the complete implementation of these processes.

<b>Table C1-7. MSGIQ-IQS-D2 Process: Responsibilities and Evidences</b>		
<b>Stakeholder</b>	<b>Responsibilities</b>	<b>Evidences</b>
Managing Director IQS	Definition of the university offer	Excel updated in Executive Board
Dean	VSMA Framework: deliver or approve reports	Memorandums (Deliver to VRAIDQ) Monitoring reports (Approve) Modifications (Deliver to VRAIDQ) Self-assessment reports (Approve)
Academic Board (IQS-SE) <i>Junta de Govern</i> (URL)	Approve the university offer Approve new or modification proposals Diffusion of the information related to the monitoring and accreditation of degrees	Meeting minutes
Program Coordinator	Collection and analysis of the information of the degree, updating of the information for its publication in websites and completion of the IST report	IST report. Web Updated
Design Commission	Elaborate the proposal to be validated	Memorandum
Quality Assurance	VSMA Framework: support and review	Quality Certificates (elaborate) IST / ISC reports (review) Self-assessment reports (review)
General Secretary	Deliver the university offer to rectorate Calculate academic indicators	Excel updated in Executive Board Indicators (IST/ISC reports)
Corporate Communications and Marketing	Communicate University offer Website Updating	Promotion actions. Web
Quality Commission (IQS-SE) CAI	Completion of the ISC report Completion of the Self-assessment report	ISC report SAR report Improvement actions
VRAIDQ	Interlocutor with Quality Agencies	Communication with Quality Agencies and with IQS
UQIAD-URL	Transversal-URL monitoring Review proposals and reports from IQS Completion of ISU report	Reviewed reports ISU report Transversal-URL Improvements Actions
Quality Commission (IQS-URL)	Transversal-URL monitoring	Meeting minutes

The different surveys used for collecting the satisfaction of interest groups are shown in criterion 6.

[See evidence 1-h=6-f, Surveys MQF-MQA-MCIEM]

**Criterion 1.4 Admission requirements**

In terms of admission, the requirements and procedures are binding, transparent and the same for all applicants.

The admission requirements are structured in a way that supports the students in achieving the learning outcomes.

There are clear rules as to how individual admission requirements that have not been fulfilled can be compensated. A lack of previous knowledge must, however, never be compensated at the expense of degree quality.

The requirements to access to any Master Degree of the *Universitat Ramon Llull* addresses the requirements laid down in, Spanish regulation, Article 16 of Royal Decree 1393/2007, of 29 October amended by Royal Decree 861/2010 of 2 July :

*To access the official Master studies will be necessary to be in possession of a Spanish degree or another issued by an institution of higher education in the European Higher Education Area that empower the country issuing the qualification for admission to university master's degree.*

[See evidence 1-g, Study regulation]

**The institution publishes accurate, complete, up-to-date and accessible information on the characteristics of the degree and its operational development. [AQU STD 2.1]**

The admission requirements and procedures are published in the program website in order to guarantee the process transparency. The admission commission is the responsible for ensuring proper implementation of the procedure and in the same criteria for all applicants.

MQF:	<a href="http://www.iqs.edu/en/iqs-school-engineering/masters-science/masters-degree-pharmaceutical-chemistry/acceptance-masters">http://www.iqs.edu/en/iqs-school-engineering/masters-science/masters-degree-pharmaceutical-chemistry/acceptance-masters</a>
MQA:	<a href="http://www.iqs.edu/en/masters-doctorades/iqs-school-engineering/masters-degree-analytical-chemistry/admissions">http://www.iqs.edu/en/masters-doctorades/iqs-school-engineering/masters-degree-analytical-chemistry/admissions</a>
MCiEM:	<a href="http://www.iqs.edu/en/masters/materials-science-and-engineering/acceptance-masters-degree">http://www.iqs.edu/en/masters/materials-science-and-engineering/acceptance-masters-degree</a>

[See evidence 1-i, Admission requirements MQF-MQA-MCiEM]



**Admitted students have a suitable entry profile for the degree and their number is consistent with the number of places offered. [AQU STD 1.3]**

## MQF

The University Master's Degree in Pharmaceutical Chemistry is addressed to graduates in:

- Chemistry, *Licenciatura* in Chemistry or equivalent degree
- *Licenciatura* in Pharmaceutics or equivalent degree
- Chemical Engineering, in Industrial Technologies Engineering or equivalent degree
- Chemical Engineering, Chemical Engineering Technology or equivalent degree
- Other qualifications such as:
  - Biochemistry, Biotechnology or equivalent degree
  - Environmental Sciences, Nanotechnology or equivalent degree

By equivalent degree it regards qualifications in the fields of knowledge that give access to the Master and from other countries both within the European Higher Education Area (EHEA) and outside it.

Graduates who want to expand or focus their career towards pharmaceutical chemistry. They will be able to become high-level professionals in research, development and innovation in industry or to develop their academic career by enrolling in a PhD.

Applications submitted are individually analyzed by MQF Admission Committee, formed by the Coordinator of the Master in Pharmaceutical Chemistry, Dean of the IQS School of Engineering and the General Secretary of the IQS.

If deemed appropriate - applications requiring very high bridging courses (*Complementos Formativos*), candidates in need of guidance or candidates from outside the EHEA - the Admission Committee of MQF convene the candidate for a personal interview with the Coordinator of the Master. The Commission considers the application of a given candidate and evaluates the curriculum of the candidate. A letter of admission is issued including the need or not of bridging courses. This letter is sent to the candidate by the General Secretary of the IQS.

In all cases, the Advisory Committee of the Master, in considering applications for admission, respect the principles of effective equality between women and men, equal opportunities for holders of a diploma giving access to the program, non-discrimination and universal accessibility for people with disabilities.

Candidates who have not been accepted may appeal to the Academic Board (*Comisión Permanente de la Junta Académica* of IQS School of Engineering).

The admission profile of students enrolled in the academic year 16-17, the third year of the implementation of MQF, is considered adequate since 20 places were initially offered, which was initially covered by 22 (110%). Of these, 17 (77.27%), they reached the Degree in Chemistry, 2 (9.09%) with the Degree in Nanosciences, 1 with the Degree in Biochemistry (4.55%), 2 with foreign qualifications [1 with the Degree of Pharmacy from the University of Bologna, Italy (4.55%) and 1 (4.55%) with studies of Chemical Engineering studied in Peru]. Of the 22, 9 are men (40.91%) and 13 women (59.09%) which means a majority of women (see Table C1-8).

Only 4 of the 22 students admitted had obtained the bachelor degree in IQS (18.18%), indicating the interest of the MQF in graduates from other universities. However, 8 of the 22 students admitted had obtained the degree of access outside Catalonia (36.36%).

During the course 2016-2017, the admission to the second semester of a candidate (Graduate in Chemistry at IQS-SE (URL)) was accepted. This acceptance, due to the special circumstances, occurred after an interview with the MQF Coordinator prior to acceptance and was assessed by the Admissions commission. For this reason in the courses of the second semester of the 2016-2017 academic year there are 23 students.

The average mark of access for students enrolled in the 2016-2017 course has been 6.45.

<b>Table C1-8. MQF Admissions process indicators</b>				
	<b>Indicators</b>	<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>
<b>ENROLLMENT</b>	Number of places offered by new access	<b>15</b>	<b>15</b>	<b>20</b>
	Number of students enrolled in new income	<b>10</b>	<b>15</b>	<b>23</b>
	% Students enrolled in new income with respect to the total offered	<b>66,7</b>	<b>100%</b>	<b>115%</b>
	Distribution of students enrolled according to the degree of access			
	Degree in Chemistry (4 year program)	<b>6</b>	<b>12</b>	<b>18</b>
	Degree in Chemistry (5 year program)	<b>3</b>	<b>1</b>	<b>-</b>
	No-European Degree	<b>1</b>	<b>1</b>	<b>2</b>
	Degree in Biotechnology	<b>-</b>	<b>1</b>	<b>-</b>
	Degree in Chemical Engineering			<b>-</b>
	Degree in Nanosciences and Nanotechnology			<b>2</b>
	Degree in Biochemistry			<b>1</b>
	Total number of students enrolled in the degree	<b>10</b>	<b>25</b>	<b>41</b>
	Average of the credits enrolled per student	<b>60</b>	<b>48</b>	<b>45</b>

## MQA

The University Master's Degree in Analytical Chemistry is intended for university graduates interested in gaining a deeper knowledge of analytical chemistry. Applicants must have a solid educational background in chemistry.

The official degree courses granting direct admission to this master's degree are the EHEA bachelor's degree in Chemistry or equivalent. Graduates in other related subjects such as pharmacy, biochemistry, biotechnology, chemical engineering, environmental sciences, nanotechnology or equivalent degrees, etc. can access this master's degree program providing that they have an adequate background in analytical chemistry in accordance with the criteria of the Admission Committee. In these cases, the Admission Committee will decide if the candidate must enroll in any additional formative course (*Complemento formativo*).

The applications submitted by the candidates are individually studied by the Admission Committee of the MQA. This committee is formed by the Coordinator of the MQA, the Dean of IQS School of Engineering and the Secretary General of IQS. In case of considering it convenient (for example candidates that require very a high number of additional formative courses, candidacies with orientation needs or candidacies from outside the EHEA), the Admission Committee of the MQA will call the candidate for a personal interview with the MQA Coordinator. The Committee studies the application and assesses the curricular profile of the candidate by issuing a letter of admission detailing the need or not of additional formative courses. This letter is sent to the candidate by the General Secretary of IQS.

In all cases, the Master's Admission Committee, when studying admission applications, will respect the principles of effective equality of women and men, equal opportunities among holders of a degree that gives access to the program, non-discrimination and universal accessibility for people with disabilities.

Candidates who have not been admitted can appeal to the Academic Board (*Comisión Permanente de la Junta Académica* of IQS School of Engineering).

The admission profile of students enrolled in the academic year 16-17, third year of the implementation of MQA, is considered sufficient since 15 places were offered, of which 8 (53%) were covered and this figure represents an increase compared to the previous year. Of these, 8 (100%) had access to the Degree in Chemistry (see Table C1-9). Of the 8 students, 3 are men (37.5%) and 5 are women (62.5%).

At the time of preparing the present IST, enrollment on course 17-18 has been carried out and the 15 places have been covered.

Table C1-9. MQA Admissions process indicators				
	Indicators	2014-15	2015-16	2016-17
ENROLLMENT	Number of places offered by new access	15	15	15
	Number of students enrolled in new income	4	6	8
	% Students enrolled in new income with respect to the total offered	27%	40%	53%
	Distribution of students enrolled according to the degree of access			
	Degree in Chemistry (4 year program)	2	6	8
	Degree in Chemistry (5 year program)	1	-	-
	Chemical Engineering	1	-	-
	Total number of students enrolled in the degree	10	25	41
	Average of the credits enrolled per student	60	48	45

## MCiEM

The number of places offered by new access established in the certificate verification report is 15 places.

The 2016-2017 academic year, the number of students in MCiEM is 11 (see Table C1-10). Additionally, there is an increase in the diversity of the degrees of origin, which is valued very positively. Specifically, during the 2016-2017 academic year there are 4 students from Degrees in Chemistry (36.4%), 4 Degrees in Chemical Engineering (36.4%), 1 Degree in Biotechnology (9.1%), 1 Degree in Materials Engineering (9.1%) and 1 Degree in Nanoscience and Nanotechnology (9.1%).

Of the 11 students, 7 are men (63.6%) and 4 women (36.4%). Only 4 of the 11 students admitted had obtained the degree of access to IQS (36.4%) which indicates the interest of MCiEM in graduates of other universities

It is noteworthy that during the 2017-2018 academic year the number of students in the master's degree is 17. Increase the diversity of the degrees of origin even more. In particular, during the 2017-2018 academic year there are 3 students from Degrees in Chemistry, 6 Degrees in Chemical Engineering, 2 Degrees in Biotechnology, 1 Degree in Materials Engineering, 4 Degrees in Nanoscience and Nanotechnology and 1 in Degree in Industrial Design Engineering.

The progression in the number of students of the degree is valued very positively, which began with 5 students of new income the 2014-15, increasing to 6 students the 2015-2017, to reach 11 students in 2015-2016 and finally to 15 students of new entrance the 2017-2018 academic year. Therefore, the result of the actions carried out to promote MCiEM is satisfactorily valued (see Annex, Improvement Plan) and the admission profile of students enrolled in MCiEM is considered adequate.

<b>Table C1-10. MCiEM Admissions process indicators</b>				
	<b>Indicators</b>	<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>
<b>ENROLLMENT</b>	Number of places offered by new access	<b>15</b>	<b>15</b>	<b>20</b>
	Number of students enrolled in new income	<b>5</b>	<b>6</b>	<b>11</b>
	% Students enrolled in new income with respect to the total offered	<b>33%</b>	<b>40%</b>	<b>73%</b>
	Distribution of students enrolled according to the degree of access			
	Degree in Chemistry	<b>4</b>	<b>1</b>	<b>4</b>
	Chemical Engineering	<b>1</b>	<b>3</b>	<b>4</b>
	Industrial Technical Engineer	-	<b>1</b>	-
	Degree in Industrial Engineering	-	<b>1</b>	-
	Degree in Biotechnology	-	-	<b>1</b>
	Degree in Materials Engineering	-	-	<b>1</b>
	Degree in Nanoscience and Nanotechnology	-	-	<b>1</b>
	Total number of students enrolled in the degree	<b>5</b>	<b>6</b>	<b>11</b>
	Average of the credits enrolled per student	<b>60</b>	<b>45</b>	<b>49,4</b>

On the other hand, it is considered appropriate to promote interdisciplinarity and to encourage the incorporation of students into MCiEM with mixed profiles Industrial Engineering / Materials. This approach is aligned with the fact that, strategically, the possibility of offering simultaneity of studies to IQS students is considered very positive.

In this regard, the IQS University Master's Degree in Industrial Engineering has been offered the opportunity to take the MCiEM simultaneously in its master's degree, from its second year. An itinerary has been designed that would make it possible, without modifying the MCiEM curriculum. This action is expected to lead to an increase in the number of MCiEM students in the short term ([see Annex, Improvement Plan](#)).

#### **Activities related to the promotion of IQS Degree programs:**

The Department of Corporate Communications and Marketing of IQS is responsible for the promotion of the studies taught at IQS. Activities related to the promotion carried out during the course 2016-17 to present the studies to candidates who respond to the profile of income established in the different degrees have been:

- Informative sessions related with MQF, MQA and MCiEM at the IQS School of Engineering facilities: 11/01/17, 8/02/17, 03/17/17, 04/26/17, 05/30/17 and 06/21/17.
- Personal interviews: any candidate interested in the Masters studies offered at IQS may request additional information or request a personal interview with the program coordinator through the IQS website or by contacting the Department of Communication and Corporate Marketing. Regarding the students of the 2016-2017 course, the Master Coordinator (MQF, MQA and MCiEM) interviewed them in person or by telephone.

- Participation in Thematic Postgraduate Fairs (Futura, FIEP) carried out in different cities around Catalonia, the rest of Spain and Andorra (for example: Future Hall of Masters and Postgraduates, Barcelona, 24 and 25/03 / 17).
- Publication of brochures for the presentation of IQS-SE master's degrees, offers of studies and various activities, sent either by post (printed leaflets) or by e-mail for all on-line information.
- Informative and advertising campaigns on the offer of master's degrees in different media (newspapers, specialized press, advertising panels at strategic points in the city, etc.), Social networks (Facebook, Twitter, Instagram, etc.) and insertion of promotional banners of the programs offered by the institution in the main virtual portals of academic information (UNPORTAL, etc.).
- Advertising campaigns announcing the holding of informative sessions at IQS, published in the main newspapers of the city.
- Publication of a divulging monograph of the IQS training activity that is inserted in the main newspapers of the city, coinciding with the dates of the Future Hall.
- IQS Website where knowledge and public access to all the information on the operational development of the different degrees is facilitated: <http://www.iqs.edu/ca>.
- AdWords campaigns for the different IQS studies, differentiated by program and geographical area.
- Creation of specific landing pages for the various IQS training programs.
- Specific e-mail campaigns for programs and actions.

[See evidence 1-j, Profiles of applicants and admitted students MQF-MQA-MCiEM]

**Academic guidance services adequately support the process of learning and professional orientation facilitating their incorporation into the labor market. [AQU STD 5.1]**

Academic guidance service begins with the attention of the candidates with the various information systems and the welcome sessions that facilitate the incorporation into the Center (See Criterion 2.4).

The IQS protocol for the recognition and transfer of credits is included at Criterion 2.1.

### Mechanisms of teaching coordination

#### The degree program has appropriate teaching coordination mechanisms. [AQU STD 1.4]

To ensure horizontal and vertical teaching coordination, IQS-SE has established a protocol for systematic meetings that allow the improvement of the quality of teaching and the programs taught. The operation, composition and regularity of the different meetings respond basically to what is described in the MSGIQ and in the various verified reports. The topics discussed and the agreements taken are contained in the minutes of each meeting. In addition to the systematically established meetings, it is contemplated to carry out other temporary ones, such as those convened to coordinate the processes of national and international accreditations.

The following table summarizes the protocol for the operation of each of the meetings with reference to Master's degrees:

Table C1-11. Teaching coordination mechanisms		
Educational bodies and coordination mechanisms	Composition	Frequency
IQS Executive Board ( <i>Consell de Centre, CC</i> ) (Ordinary collegiate governing body of the institution)	<ul style="list-style-type: none"> <li>- IQS Managing Director</li> <li>- Deans of IQS-SM and IQS-SE</li> <li>- Director of IQS TECHTRANSFER and Research</li> <li>- Director of Executive Education</li> <li>- General Secretary of IQS</li> <li>- HR Director</li> <li>- IQS Administrator</li> <li>- Corporate Communications and Marketing Director</li> </ul>	Monthly (Minimum once a quarter)
Permanent Committee of IQS Executive Board ( <i>Comissió Permanent del Consell de Centre, CPCC</i> )	<ul style="list-style-type: none"> <li>- IQS Managing Director</li> <li>- Deans of IQS-SM and IQS-SE</li> <li>- General Secretary of IQS</li> <li>- Corporate Communications and Marketing Director</li> </ul>	Monthly (Independently of CC)
Academic Board IQS-SE ( <i>Junta Acadèmica, JA</i> )	<p><u>Ex officio members:</u></p> <ul style="list-style-type: none"> <li>- IQS Managing Director</li> <li>- Dean of IQS-SE</li> <li>- General Secretary of IQS</li> <li>- Heads of Department</li> </ul> <p><u>Elected members:</u></p> <ul style="list-style-type: none"> <li>- A professor of each Degree and two professors of Master's Degrees (periods of 2 years)</li> <li>- A representative student of Bachelor studies and one of Master's Degrees and PhD (1 year period)</li> </ul>	Quarterly (Preferably once each academic quarter)

<b>Table C1-11. Teaching coordination mechanisms</b>		
<b>Educational bodies and coordination mechanisms</b>	<b>Composition</b>	<b>Frequency</b>
Permanent Committee of the Academic Board IQS-SE ( <i>Comissió Permanent de la Junta Acadèmica, CPJA</i> )	<ul style="list-style-type: none"> <li>- IQS Managing Director</li> <li>- Dean of IQS-SE</li> <li>- General Secretary of IQS</li> <li>- Two representatives of professors (members of JA)</li> <li>- A student representative (Member of JA)</li> </ul>	Between 6 and 10 times a year
OEC-DOCENTIA IQ	<ul style="list-style-type: none"> <li>- IQS Managing Director</li> <li>- Deans of IQS-SM and IQS-SE</li> <li>- General Secretary of IQS</li> <li>- Quality Manager</li> <li>- Responsible for processes affected (Responsible of students surveys)</li> <li>- Representatives of professors and students (members of CPJA IQS-SE and IQS -SM)</li> </ul>	Annual
Meetings of the Dean with Heads Department	<ul style="list-style-type: none"> <li>- Dean</li> <li>- Heads of Department</li> </ul>	Monthly
Department Meetings	<ul style="list-style-type: none"> <li>- Head of department</li> <li>- Professors Department</li> </ul>	Monthly
Quality Committee IQS	<ul style="list-style-type: none"> <li>- IQS Managing Director</li> <li>- Dean of IQS-SE</li> <li>- Dean of IQS-SM</li> <li>- Quality Manager of IQS-SE</li> <li>- Quality Manager of IQS-SM</li> </ul>	Annual
Quality Commission IQS-SE	<ul style="list-style-type: none"> <li>- Dean of IQS-SE</li> <li>- Quality Manager of IQS-SE</li> <li>- Heads of Department</li> <li>- Coordinators of Bachelor Programs</li> <li>- Master's Coordinators</li> <li>- Coordinators of PhD Programs</li> </ul>	Quarterly
Temporary Committees	Meetings created with a specific purpose, such as coordinating accreditation processes within the framework VSMA or AACSB Continuous Improvement Review, with the participation of the people involved in the process.	At requirement
Master Coordination	<ul style="list-style-type: none"> <li>- Dean (optional)</li> <li>- Master Coordinator</li> <li>- Professors of the Master's Degree</li> </ul>	Annual (minimum)
Meetings with Delegates of the Students	<ul style="list-style-type: none"> <li>- Coordinator Master</li> <li>- delegates</li> </ul>	Once each semester (minimum)



The objectives of each of these organs are:

- CC and CPCC: approval of actions linked to the Strategic Plan of the Center.
- JA and CPJA: approval of the actions related to the operational development of the titles.
- Specific body OEC-DOCENTIA IQS: follow-up DOCENTIA faculty evaluation program.
- Dean meetings with Department heads and Department Meetings: deployment of the actions established in the governing bodies (CC and JA); Feed-back of people involved with key processes. The Dean and the Heads of Department deliver the corresponding reports to the JA.
- Quality Committee: actions oriented to update the IQS quality assurance manual.
- Quality Commission: continuous monitoring and improvement of degrees. These information is oriented to the completion of IST/ISC monitoring reports.
- Temporary commissions: coordination of the processes of accreditation of official degrees within the VSMA Framework or other international accreditation system.
- Master's Coordination: follow-up course development. The coordinators of the Master make a report for the Quality Committee.
- Meetings with delegates: follow-up course development. The coordinator makes the record and presents it to the Quality Committee.

In addition to these generally established meetings, each degree has other coordination mechanisms that are specific to responding to their specific needs. These actions are detailed in the corresponding IST.

[See evidence 1-k, Institutional Coordination]

[See evidence 2-j, IST monitoring reports]

## 2. The Degree Programme: Structures, Methods & Implementation

### Criterion 2.1 Structure and modules

All degree programmes must be divided into modules. Each module is a sum of teaching and learning whose contents are concerted.

With its choice of modules, the structure ensures that the learning outcomes can be reached and allows students to define an individual focus and course of study (student mobility, work experience etc.).

The curriculum is structured in a way to allow students to complete the degree without exceeding the regular course duration.

The modules have been adapted to the requirements of the degree programme. They ensure that each module objectives helps to reach both the qualification level and the overall intended learning outcomes.

All working practice intervals or internships are well-integrated into the curriculum, and the higher education institution vouches for their quality in terms of relevance, content and structure.

There are rules for recognising achievements and competences acquired outside the higher education institution. They render the transition between higher education institutions easier and ensure that the learning outcomes are reached at the level aimed for.

**The syllabus and structure of the curriculum are consistent with the profile of competences and with the objectives of the degree. [AQU Ex-ante assessment process, AQU STD 1.2]**

The information related to module descriptions is published in the MQF, MQA and MCiEM website:

MQF: <a href="https://www.iqs.edu/en/masters/pharmaceutical-chemistry/new-2014-2015-curriculum">https://www.iqs.edu/en/masters/pharmaceutical-chemistry/new-2014-2015-curriculum</a>
MQA: <a href="https://www.iqs.edu/en/masters/analytical-chemistry/curriculum">https://www.iqs.edu/en/masters/analytical-chemistry/curriculum</a>
MCiEM: <a href="https://www.iqs.edu/en/masters/materials-science-and-engineering/curriculum">https://www.iqs.edu/en/masters/materials-science-and-engineering/curriculum</a>

[See evidence 2-a=1-d, Study plan / Module descriptions MQF-MQA-MCiEM]

In addition, according AQU recommendations, all documentation related to the VSMA framework has been included on the IQS website (see Annex, Improvement Plan).

[See evidence 1-a Memorandum reports, MQF-MQA-MCiEM]

The processes “Development of Degree Programs for encourage learning” is included in the internal quality assurance manual (MSGIQ-IQS-D3).

[See evidence 2-c, Process description]

## MQF

The MQF modules are (see Criterion 1.3):

**M1. Transversal module:** it intends to give the student general contents that allow the incorporation of the graduate to the various departments of a pharmaceutical company related to the research and production of new "small-molecules" as drugs.

**M2. Drug Research module:** the contents are related to the design, synthesis and structural elucidation of new drugs. Includes a number of high hours of laboratory practices (around 225 h) that allow the student to acquire the necessary experimental skills for said stage of the development of a drug.

**M3. Drug Production module:** the contents are focused on the industrial production of drugs, including the economic, environmental and safety aspects included, as well as the analysis of the obtained compounds and aspects related to quality and regulatory affairs. It also includes a laboratory of about 225 h to acquire the necessary experimental skills.

**M4. Elective Subjects module:** The possibility of choosing two elective subjects allows the students a small degree of extra specialization based on their interests. A small catalog of optional subjects has been chosen that allows it to be easily modified based on the appearance of new technologies or aspects of interest in the pharmaceutical sector.

**M5. Master's Thesis module:** The development of the research project (TFM) is the highlight of the Master that must allow the graduate to work independently in the industry or prepare for the accomplishment of the Doctoral Thesis.

The different competences acquired by the students are distributed in the different Modules so that some are purchased only in one of the modules while others are transversal to several of the modules (see Table C2-1):

- Basic Competences (CB6-CB10) are acquired in all modules
- General Competences CG1-CG2 are acquired in M1,M3,M5 and M1,M5, respectively
- Specific Competences are assigned separately to each of the five modules
- Transversal Competences (T1 and T3) are acquired in all modules while, the T2 (leadership) is assigned to M1.M5

Table C2-1. Competences vs Modules Distribution						
Competences		M1	M2	M3	M4	M5
Basic and general	CB6-CB10					
	CG1					
	CG2					
Specific	E1-E5					
	E6-E12					
	E13-E19					
	E20-E21					
	E22-E27					
Transversal	T1					
	T2					
	T3					

## MQA

MQA is structured in four modules (see Criterion 1.3):

**M1.** The **Technological Module** is focused to go in depth in the main analytical techniques, in identification and structural characterization and in the application of statistics to chemical analysis.

**M2.** The aim of the **Management Module** is to provide the student with knowledge in the techniques of project and laboratories management in a company (from the definition of the strategy and the organization of R + D + i to the techniques to guide the teams towards the defined objectives), and of the management and assurance of quality.

**M3.** The aim of the **Specific Module** is to provide the student with specific knowledge directly related with the specialty of chemistry in which the Master is focused. The module consists of five compulsory subjects. The main matrices to which analytical processes apply are described. Thus, we work with the following matrices: food (Agrofood Analysis), pharmaceutical (Analysis of Pharmaceutical Products), environmental (Environmental Quality Analysis) and several other industrial matrices (Analysis of Industrial Products). The module is completed with the Integration and Analytical Specialization Laboratory, which integrates the experimentation relative to the other subjects of the module.

**M4.** In the **Master's Thesis Module** an individual research project (TFM) is conducted in a research group under the direction of a professor of the Master.

The different competences acquired by the students are distributed in the different Modules (see Table C2-2):

- Basic Competences (CB6-CB9) are acquired in all modules, CB10 is acquired in M3.M4
- General Competences (CG1-CG2) are acquired in M2.M3 and M1.M3.M4, respectively
- Specific Competences (E1-E26) are acquire across the four modules
- Transversal Competences (T1-T3) are distributed in the different modules

Table C2-2. Competences vs Modules Distribution					
Competences		M1	M2	M3	M4
Basic and General Competences	CB6 - CB9				
	CB10				
	CG1				
	CG2				
Specific Competences	E1 – E8				
	E9 - E12				
	E13 – E20				
	E21 – E26				
Transversal Competences	T1				
	T2				
	T3				

See Objectives-Module-Matrix MQF-MQA in *criterion 1.1*

[See evidence 1-f]

## **INTERNSHIPS**

The Professional Careers Service manages the external practices, which are non-curricular for MQF, MQA and MCiEM Degree programs.

MQF, MQA and MCiEM has a high experimental load (about 440 hours of laboratory plus the TFM). However, during the first editions we have observed an increasing interest on the part of the students to carry out practices in companies (INTERNSHIPS). This circumstance, coupled with the possibility of presenting the TFM during the academic year in which it is carried out, has allowed us to propose for all students the possibility of doing internships for a period of about 6 months between the end of the second semester of the First Master's degree (the first 60 ECTS) and the beginning of the experimental part of the TFM. This approach has allowed a growing number of MQF-MQA-MCiEM students to embrace the possibility of doing such practices in companies.

The Professional Careers Service prepares an annual report that collects the activities carried out, detailing the students-Degree programs involved, the sectors of the companies and the student and companies evaluation.

[See evidence 2-e, Practicum]

## MOBILITY

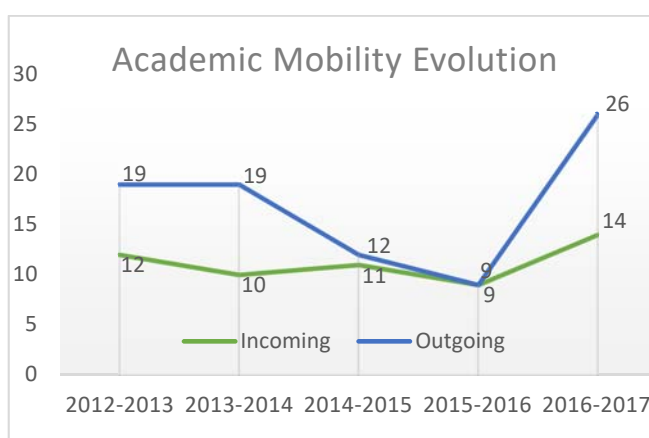
Regarding the personalized mobility of the students, the contact established with other universities with similar Master's programs has revealed that it is difficult to find the same type of subjects in other universities and also during the same semester.

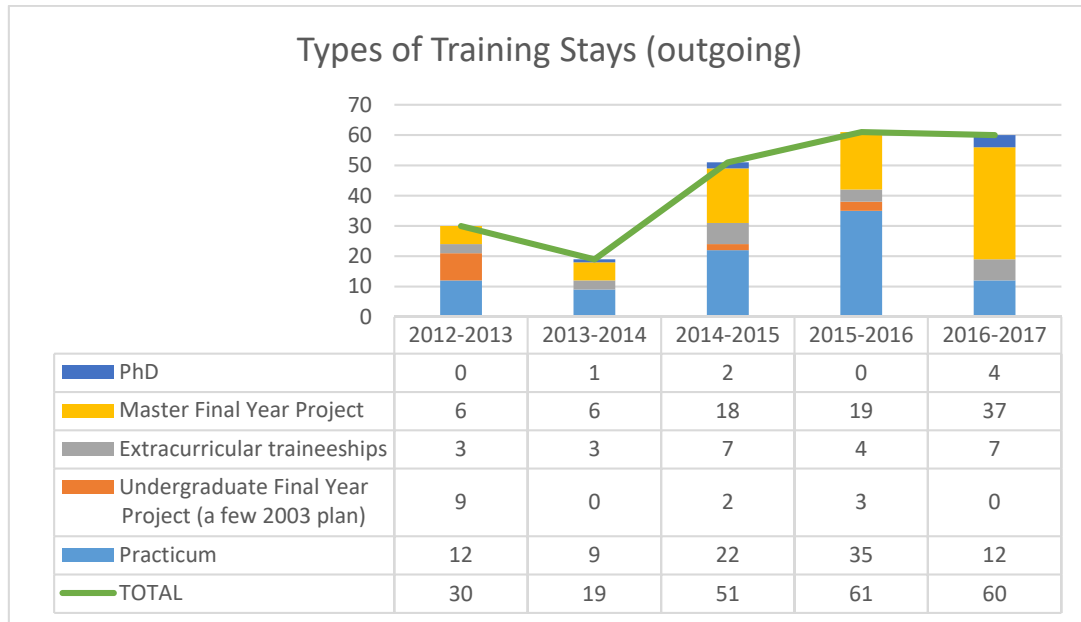
Consequently, the mobility of the Master in Pharmaceutical Chemistry has been clearly oriented towards the Final Master's Degree (TFM).

The International Relations office (RRII) prepare an annual report and send it to the IQS-SE Academic Board and to the Executive Board (see evidence 2-d). This report shows the mobility of students at IQS School of Engineering (SE) as for outgoing (IQS students doing an exchange abroad) and incoming (students coming to IQS). Mobility is a very important and enriching aspect for the students during their academic life. At IQS, the International Relations office aims to achieve and offer good mobility opportunities for students who wants to stay abroad. The applications for the corresponding universities and the scholarships that each student can apply are being processed at this office. They also advice about the best choices of accommodation in each destination.

In the same way, they work to ensure that the stay of *incoming* students is completely satisfactory. They advise them before coming to IQS, during the process of the application (insurance and other necessary documents) and in the selection of subjects that they will have at IQS. There is also a welcome session (Welcome Meeting) and an individual meeting with each student, as well as visits/trips and other extracurricular activities and personal attention to any issues that arise during their stay.

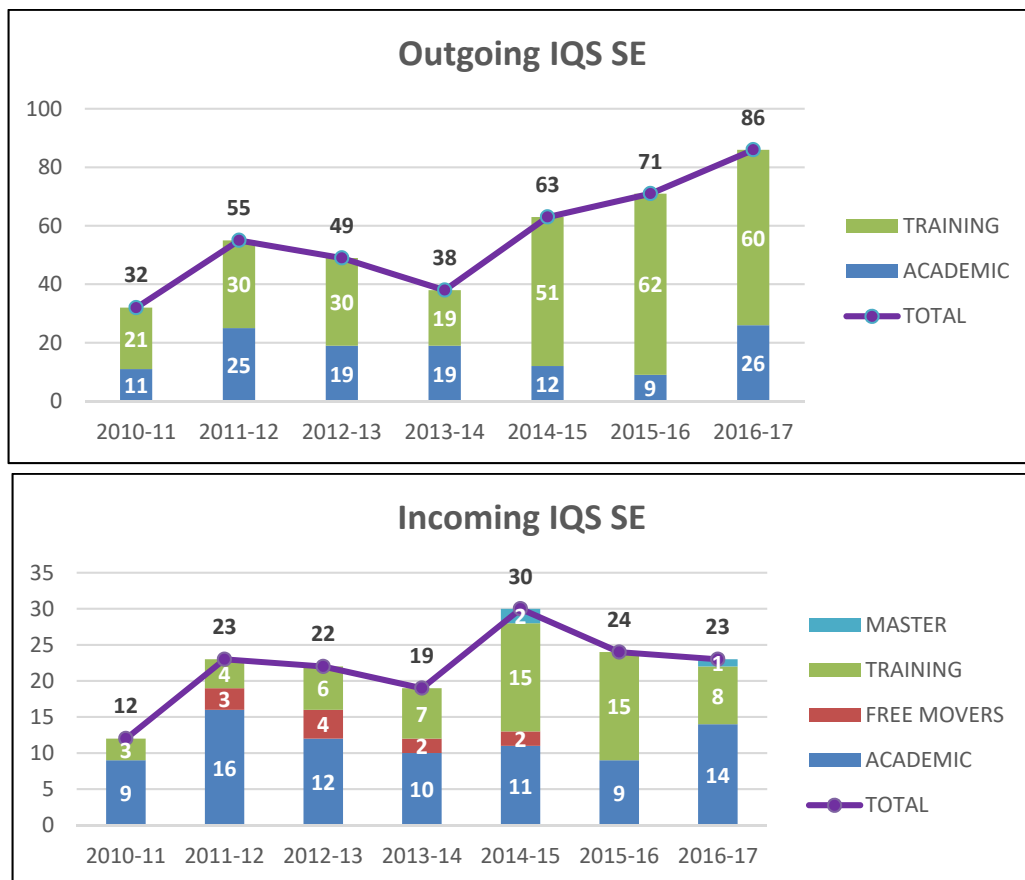
Both for *incoming* and *outgoing*, we consider that there are three types of mobility (academic stay, training/research stay and *free mover* students). Below these academic and training stays are summarized.





The RRII report shows the companies and universities where IQS SE students have carried out research and the centers where students can potentially carry out research stays.

To have an overall picture of all the mobility, we present below two graphics that include both training and academic stays of the outgoing and incoming students. We have a higher outgoing mobility than incoming mobility, which could be of concern for academic stays.





We have to take into consideration that the outgoing academic mobility is increasing very fast (9 students during 2015-16 to 26 in 2016-17) and is expected to continue increasing. Currently many of the agreements are not balanced (we send more students than we receive) and this could mean that some partners will not want to renew the agreement for mobility.

To face this issue we propose several solutions:

- a) Enhance the mobility for Practicum and for Undergraduate and Master Final Year Project since this type of mobility does not affect the balance between the institutions. Try to take this opportunity to enrich the IQS research areas.
- b) Offer more subjects in English to be attractive for international students.
- c) Look for new partners to diversify the offer to study abroad.

[See evidence 2-d, Student mobility]

## MQF

There has been no mobility abroad of the students of MQF. This type of mobility is primarily foreseen by the TFM.

After the consolidation of the MQF, and in accordance with the guidelines of the IQS Strategic Plan, to increase the internationalization of this program has been identified as a improvement action (see Annex Improvement Plan).

The following actions has been established:

### **1) Application to the Chemistry Euromaster label by the MQF (<http://www.expe.ectn-assoc.org/>):**

The Dean and the coordinator felt that, after three promotions, to get the Chemistry Euromaster label could be of great importance to give us visibility in the international market. The proposal received the support of the IQS Director General and was communicated to Rectorate and the quality unit of IQS.

An agreement between AQU-ASIIN and URL was established so that the accreditation process of the MQF will include dual accreditation.

The next visit is scheduled for April 2018.

## 2) Possible establishment of contact and exchanges with universities with similar Masters:

The Dean, the coordinator of the Master and the International Relations Office have identified a number of universities with similar programs.

Among others:

University of Glasgow	Chemistry with Medicinal Chemistry MSc	<a href="http://www.gla.ac.uk/postgraduate/taught/chemistrywithmedicinalchemistry/">http://www.gla.ac.uk/postgraduate/taught/chemistrywithmedicinalchemistry/</a>
University of Edinburgh	Medicinal & Biological Chemistry	<a href="http://www.ed.ac.uk/studying/postgraduate/degrees/index.php?r=site/view&amp;id=450">http://www.ed.ac.uk/studying/postgraduate/degrees/index.php?r=site/view&amp;id=450</a>
Loughborough University	Pharmaceutical Science and Medicinal Chemistry	<a href="http://www.lboro.ac.uk/study/postgraduate/programmes/taught/pharmaceutical-science-medicinal-chemistry/">http://www.lboro.ac.uk/study/postgraduate/programmes/taught/pharmaceutical-science-medicinal-chemistry/</a>
Cardiff University	MSc Medicinal Chemistry	<a href="http://www.cardiff.ac.uk/study/postgraduate/taught/courses/group/medicinal-chemistry">http://www.cardiff.ac.uk/study/postgraduate/taught/courses/group/medicinal-chemistry</a>
Universität Regensburg	Master's degree Medicinal Chemistry	<a href="http://www.uni-regensburg.de/chemistry-pharmacy/faculty/studies/chemistry/master-s-degree-medicinal-chemistry/index.html">http://www.uni-regensburg.de/chemistry-pharmacy/faculty/studies/chemistry/master-s-degree-medicinal-chemistry/index.html</a>
Universität Bonn	MSc Drug Research	<a href="https://www.uni-bonn.de/studying/international-students/international-degree-programs/life-sciences/drug-research">https://www.uni-bonn.de/studying/international-students/international-degree-programs/life-sciences/drug-research</a>
Freie Universität Berlin	MSc Pharmaceutical Research	<a href="http://www.fu-berlin.de/en/studium/studienangebot/master/pharmazeutische_forschung/index.html">http://www.fu-berlin.de/en/studium/studienangebot/master/pharmazeutische_forschung/index.html</a>
University of Copenhagen	Master of Science (MSc) in Medicinal Chemistry	<a href="http://studies.ku.dk/masters/medicinal-chemistry/">http://studies.ku.dk/masters/medicinal-chemistry/</a>
Aarhus University	MSc Medicinal Chemistry	<a href="http://kandidat.au.dk/en/medical-chemistry/">http://kandidat.au.dk/en/medical-chemistry/</a>
University of Gothenburg	Master's Programme in Organic and Medicinal Chemistry	<a href="http://utbildning.gu.se/education/courses-and-programmes/program_detail/?programid=N2KEL">http://utbildning.gu.se/education/courses-and-programmes/program_detail/?programid=N2KEL</a>
New Jersey Institute of Technology	MS in Pharmaceutical Chemistry	<a href="https://chemistry.njit.edu/academics/graduate/pharmchem/">https://chemistry.njit.edu/academics/graduate/pharmchem/</a>
Creighton University	Pharmaceutical Sciences (Master of Science)	<a href="https://www.creighton.edu/program/pharmaceutical-sciences-ms">https://www.creighton.edu/program/pharmaceutical-sciences-ms</a>

RRII will make contacts to determine the possibilities of exchange of students and / or teachers. An English version of the MQF brochure will be used for these contacts.

Contacts have been initiated with the University of Cardiff.

### 3) Entering the Paul Ehrlich Med Chem Euro PhD Network:

This network consists of 42 universities across Europe which have PhD programs in Medicinal Chemistry. The coordinator is Prof. Julio Alvarez-Builla of the University of Alcalá. Belonging to the network has no associated costs and allow us to have relations with institutions with similar programs.

The association protocol is as follows:

The Paul Ehrlich Med Chem Euro PhD Network is open to all European institutions with a PhD program in Medicinal Chemistry or related areas. Every institution would have a link with the Network through a local coordinator, who will help to integrate other staff and PhD students in the Network activities.

The institutions wishing to join the Network should send a Letter of intent for participation in the Paul Ehrlich MedChem Euro-PhD Network to the Network coordinator ([julio.alvarez@uah.es](mailto:julio.alvarez@uah.es)). The letter should be signed by the local coordinator and by a representative of the institution which is wishing to join the Network. Approval of a new Network member institution will be discussed at the following Board meeting. After approval by the Network Board, the Accession letter (a template will be provided) should be signed by the rector of the joining university and sent to the Network coordinator. The institution will become a member of the Network with the date of receipt of the accession letter by the Network coordinator.

We have followed this protocol and we are pending for the final acceptance.

### MQA

There has been no mobility abroad of the students of MQA. This type of mobility is primarily foreseen by the TFM.

After the consolidation of the MQA, and in accordance with the guidelines of the IQS Strategic Plan, to increase the internationalization of this program has been identified as a improvement action ([see Annex Improvement Plan](#)).

The following actions has been established:

#### 1) Application to the Chemistry Euromaster label by the MQF (<http://www.expe.ectn-assoc.org/>):

The Dean and the coordinator felt that, after three promotions, to get the Chemistry Euromaster label could be of great importance to give us visibility in the international market. The proposal received the support of the IQS Director General and was communicated to Rectorate and the quality unit of IQS. An agreement between AQU-ASIIN and URL was established so that the accreditation process of the MQF will include dual accreditation. The next visit is scheduled for April 2018.

## 2) Possible establishment of contact and exchanges with universities with similar Masters:

The Dean, the coordinator of the Master and the International Relations Office will identify universities with similar programs.

The IQS Directorate decides to postpone the decision on the possible introduction of optional subjects and their inclusion in the MQA curriculum in order to link it to the improvement in internationalization (see Annex, Improvement Plan).

### MCiEM

There has been no mobility abroad of the students of MQA. This type of mobility is primarily foreseen by the TFM.

MCiEM Mobility	14-15	15-16	16-17
% Outgoings	0	9,1%	5,9%

No student go out in mobility programs in 2014-15 academic year.

Of the students of this first promotion, one carried out the TFM in Germany (during the course 15-16).

One student of the second promotion are currently doing their TFM in California (USA).

It is expected that most mobility actions will continue to be produced in the completion of the master's final work (TFM).

**The results of the learning achieved correspond to the training objectives sought and with the level of the MECES of the degree. [AQU STD 6.1]**

On-site-visit: a meaningful selection of the teaching material, exams/transcripts/projects and other work of students from modules and from final papers/ final projects will be ready to be presented.

In addition, these material has been included as evidences the following MCiEM courses:

- Characterization and mechanical behavior and other properties
- Nanoscience and nanotechnology
- Master's thesis



**The application of the different regulations is carried out in an adequate manner and has a positive impact on the results of the degree. [AQU STD 1.5]**

The official and IQS documents where the courses of studies and their organization are regulated are included as evidences.

[See evidence 1-g, Study regulation]

[See evidence 2-b, IQS Regulations]

Particularly, RD 1393/2007, modified by RD 861/2010 and 99/2011 establishes the protocol for the modification of studies once they have been approved and put into operation.

### **Modifications**

Since 2014-15 academic year, all the modifications were included in IST monitoring reports for each Degree program. Furthermore, since 2015-16 academic year, IQS elaborate an ISC monitoring report (based on the IST reports) that added the information.

[See evidence 2-j, IST/ISC MQF-MQA-MCiEM]

### **MQF**

The no-substantial modifications, included in the MQF monitoring reports of 2014-15 and 2015-16 academic years, has been included in the “official informatics system for the programs proposals”. In addition, the following modifications must be considered:

- Change in elective offer
- Change in a subject name.

Paragraph memory	Change	Process	Overview	Body and approval date
5. Planning courses	Module 4: Module of Optional Subjects	Monitoring  IST 2016-17	Removing the optional subject:  <i>80745 Regulatory Affairs in the Pharmaceutical Industry</i>	Academic Board IQS- SE (30/11/2017)  Governing Board URL (15/02/2018)
5. Planning courses	Module 3: Module of Drug Production	Monitoring  IST 2016-17	Changing the name of the subject <i>80705 Quality Management for Quality Management and Regulatory Affairs in the Pharmaceutical Industry</i> to intensify for the content on Rules and Regulations for all students of the Master in Pharmaceutical Chemistry in the compulsory subject, without modifying the associated skills or training activities.	Academic Board IQS- SE (30/11/2017)  Governing Board URL (15/02/2018)

(see Annex, Improvement Plan)

More precisely, in the second semester of MQF and as part of Module 3 (Production of Drugs), there is **Quality Management** subject (5 ECTS). This subject was a common matter between MQF and MQA. Consequently, a program was designed that contained both the description of all Quality Systems and the Regulations (including GMP and Regulatory aspects).

The elective subject **Regulatory Affairs in the Pharmaceutical Industry** (5 ECTS) within Module 4 (Module of Optional Subjects) of the Master in Pharmaceutical Chemistry includes competences that are the generic ones of all the optional subjects of this module.

Given the interest of this elective subject, it has been proposed to differentiate **Quality Management** subject (5 ECTS) from MQF and MQA programs. So that in the MQF subject, mandatory for all students of this Master, the contents intensifies Normative and Regulation. Consequently, the denomination of this subject would become **Quality Management and Regulatory Affairs in the Pharmaceutical Industry**, to visualize the regulatory aspect. Deprogramming **Regulatory Affairs in the Pharmaceutical Industry** (5 ECTS) of the elective subject module

The proposed change, implemented in the 2017-18 course, is carried out in accordance AQU Guide for modifications.

[See evidence 1-e, Internal records, *Fitxa URL modificació MQF*]

## MQA

No modification has been made

## MCiEM

The modifications that were introduced in IST/ISC 15-16, according to the AQU requirements and suggestions included in the AQU validation report, received a positive evaluation from AQU during the monitoring process (received by *Avalua* platform on October 31, 2017). These modifications were approved by the Governing Board-URL on May 18, 2017.

During 2016-17 academic year, the only modification was the semester exchange of two subjects. More specifically, the subject "Characterization of mechanical behavior and other properties" went from the first semester to the second, while the subject "Seminars of Innovation and Entrepreneurship" went from the second semester to the first.

This change does not affect the coherence in the temporary programming of contents of the master's degree. The modification was approved at the meeting of the IQS-SE Academic Board on May 29, 2017 and by the Governing Board-URL on July 13, 2017, according to the modification procedures.

Paragraph memory	Change	Process	Overview	Body and approval date
5. Planning courses	Temporary deployment	Monitoring IST 2015-16	Semester exchange between 2 courses: "80750 Characterization of mechanical behavior and other properties" (from 1 to 2) and "80755 Seminars of Innovation and entrepreneurship" (from 2 to 1)	Academic Board IQS-SE (29/05/17)  Governing Board URL (13/07/2017)

### ***Recognition of credits***

Candidates who wish to make Masters from other universities (national or international) may request the recognition of some of the subjects approved in their studies of origin. The reports also provide recognition for work experience and their own qualifications within the limits established by the current regulations (maximum 10% of the credits of the degree).

The candidate makes the application in the General Secretariat of IQS and, once the file has been analyzed by the person designated for that purpose, it is presented to the CPJA for approval, if applicable. The Secretary-General individually informs the resolution to the interested party and draws up the recognition report that is sent to the Academic Recognition Committee of the University (URL). The favorable resolutions are included in the student record.

Although the verified reports contemplate the possibility of recognition of credits, in the case of MQF, MQA and MCiEM, there are usually no requests in this regard.

As already mentioned, from the 2017-18 academic year, the students of the University Master's Degree in Industrial Engineering are offered the possibility of studying in a simultaneous course of studies the MCiEM. In order to facilitate this option, a recognition table has been established between the two Masters. These recognitions, which are already applied since the academic year 2017-18, complies the same guidelines established in IQS regulations.

[See evidence 2-f, Transfer and recognition of credits]



### **Criterion 2.2 Work load and credits**

The estimated time budgets are realistic enough to enable students to complete the degree without exceeding the regular course duration. Structure-related peaks in the work load have been avoided.

A credit point system oriented on the amount of work required from students has been devised<sup>5</sup>. The work load comprises both attendance-based learning and self-study. This includes all compulsory elements of the degree.

**The syllabus and structure of the curriculum are consistent with the profile of competences and with the objectives of the degree. [AQU Ex-ante assessment process, AQU STD 1.2]**

Module descriptions as are available to students and the teaching staff

Documents where the courses of studies and their organization are regulated

[See evidence 1-a, Memorandum reports MQF-MQA-MCiEM]

[See evidence 2-a=1-d, Study plan / Module descriptions MQF-MQA-MCiEM]

[See evidence 2-j, IST/ISC Monitoring reports MQF-MQA-MCiEM]

In addition to the information already included in Criterion 2.1, it should be noted that:

- The IQS Masters that are the object of this report are degrees of 90 ECTS (3 semesters), which is not common in Spain where the Bachelor+ Master was chosen as 4year+1year scheme, contrary to most of Europe where a 3year + 2year scheme is followed.
- For the allocation of the total number of hours of dedication of the student it has been chosen that 1 ECTS are 27 hours of total dedication.
- In this way the students' ECTS (and corresponding hours of dedication) have been calculated for all teaching methodologies (including the personal study hours of the student).
- These ECTS and hours of dedication are contained in the syllabus of each of the Master's subjects.
- Master Coordinators monitoring this work load through the individual follow-up meetings with the professors involved, the general follow-up meetings and programming with all the

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<sup>5</sup> Within the European Higher Education Area, the ECTS Users' Guide is the expected basis for calculating credits.

professors and the meetings with the student Delegate/student's representative of the Master.

- All the Master's activities/courses have associated ECTS credits. Only External practices in companies, that are extracurricular, do not have associated credits.

Academic results (evaluation of competences and grade qualifications) are used in a systematic way in order to identify the adequacy of the students work load (see Criterion 1: Teaching coordination mechanisms). These information is includes in monitoring reports (see Criterion 3).

[See evidence 2-g, Student progression statistics MQF-MQA-MCiEM]

[See evidence 2-h, Evaluación competencias MQF-MQA-MCiEM]

[See evidence 2-j, IST/ISC Monitoring reports MQF-MQA-MCiEM]

The students' surveys (included in DOCENTIA program) are applied in the final stage of each course and for all participant teachers. In general, the results of the surveys of student satisfaction are totally favorable in all areas assessed for all degrees (see Criterion 4.1 and Table C4-3).

The results included in DOCENTIA surveys related to the work load of the three masters during the last 3 academic years are in-between 69 and 78 (see table C2-6):

Table C2-6. DOCENTIA surveys results: Work load					
Item	Description	Academic year	MQF	MQA	MCiEM
Question 5	The dedication of the student (work load) required by this teaching activity corresponds to that provided in the course syllabus	2014-15	75	75	75
		2015-16	75	78	76
		2016-17	69	74	75

[See evidence 2-i=4-c, DOCENTIA MQF-MQA-MCiEM]

**Criterion 2.3 Teaching methodology**

The teaching methods and instruments used support the students in achieving the learning outcomes.

The degree programme is designed to be well-balanced between attendance-based learning and self-study.

Familiarising the students with independent academic research and writing plays a vital role in the programme.

**Training activities, teaching methodology and assessment system are appropriate and relevant to ensure the achievement of the expected learning outcomes. [AQU STD 6.2]**

Teaching methodology is based on the combination of different training activities and evaluation systems.

This methodology, established during the program design with the participation of the teaching staff, is specified in each syllabus (available in an updated way on the IQS web).

MQF: <a href="https://www.iqs.edu/en/masters/pharmaceutical-chemistry/new-2014-2015-curriculum">https://www.iqs.edu/en/masters/pharmaceutical-chemistry/new-2014-2015-curriculum</a>
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MQA: <a href="https://www.iqs.edu/en/masters/analytical-chemistry/curriculum">https://www.iqs.edu/en/masters/analytical-chemistry/curriculum</a>
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MCIEM: <a href="https://www.iqs.edu/en/masters/materials-science-and-engineering/curriculum">https://www.iqs.edu/en/masters/materials-science-and-engineering/curriculum</a>
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Faculty have the freedom to adjust teaching methodologies and evaluation methods to their needs within the margins of variation established in the ex-ante assessment process report of the Master's degree (*Memorandum report*).

Although the laboratories included in semesters 1 and 2 of the Master's Degrees now assume a high level of scientific work independent of the students, it is undoubtedly the TFM where such independent scientific work acquires its highest importance. The competences assigned to TFM clearly show that concept of independent scientific work. In this regard, TFMs are carried out individually in internal research groups of IQS or in research centers or companies.

The training activities correspond to those described in the report (deviations less than 5% in all cases). It should be noted that in order to monitor the implementation it is considered convenient to work with the percentage values of each one of the methods.

[See evidence 2-j, IST/ISC Monitoring reports MQF-MQA-MCIEM]

**Training activities:**

- **Sessions of exposition of concepts:** Exposition of contents through presentation or explanation (possibly including demonstrations) by a professor.
- **Sessions solving exercises, problems and cases:** Solving exercises, approach / problem solving and presentation / discussion of cases by a professor with the active participation of students.
- **Seminars:** Statement made by a teacher in order to review, discuss and answer questions about materials and topics presented in the sessions of exposure sessions concepts and solving exercises, problems and cases.


**Practical work / laboratory:** Performing laboratory activities or similar (practices with computer, projects, workshops, etc.) by the student, under the direct supervision of a professor.

- **Presentations:** Oral presentation to a professor and possibly other students by a student. It can be a paper prepared by the student by searching the published literature or a summary of a practical or project undertaken by the student.


- **Activities of personal study by students:** Personal work required of the student to acquire the skills of each subject and assimilate the knowledge presented in the sessions of exposure sessions concepts and solving exercises, problems and cases, using, when necessary, the consultation recommended material.

- **Evaluation activities:** Oral and/or written statements made during a semester or after it (see criterion3).


**MQF**

		Master's Degree in Pharmaceutical Chemistry							
Module	Subject	ECTS	Sessions of exposition of concepts	Sessions solving exercises, problems and cases	Seminars	Practical work / laboratory	Presentations	Activities of personal study by students	Evaluation activities (testing, monitoring controls ...)
M1 Transversal Module	Pharmaceutical Chemistry	5							
	Project Management	5							
M2 Drug Research Module	Molecular Design	5							
	Advanced Organic Synthesis	5							
	Identification and Structural Characterization	5							
	Integrated Laboratory I	5							
M3 Drug Production Module	Process Chemistry	5							
	Drug Analysis	5							
	Quality Management	5							
	Integrated Laboratory II	5							
M4 Optional Subjects Module	Photochemistry	5							
	Pharmacology for Chemists	5							
	Experimental Design	5							
	Advanced Drug Delivery	5							
	Regulatory Affairs in the Pharmaceutical Industry	5							
M5 Master's Thesis Module	Master Thesis (TFM)	30							

## MQA

	University Master's Degree in Analytical Chemistry (MQA)		Sessions of exposition of concepts	Sessions solving exercises, problems and cases	Seminars	Practical work / laboratory	Presentations	Activities of personal study by students	Evaluation activities
	COURSE	ECTS							
M1 TECHNOLOGICAL MODULE	Identification and Structural Characterization	5							
	Advanced Chromatography/ Spectrophotometry and Electroanalysis	5							
	Chemo metrics	5							
	Analytical Technology Laboratory	5							
	Management of projects and laboratories	5							
	Quality and information management	5							
M3 SPECIFIC MODULE	Environmental quality analysis	5							
	Agro food analysis	5							
	Analysis of pharmaceutical products	5							
	Analysis of industrial products	5							
	Integration and analytical specialisation laboratory	5							

## MCIEM

	Master's Degree in Materials Science and Engineering		Sessions of exposition of concepts	Sessions solving exercises, problems and cases	Seminars	Practical work / laboratory	Presentations	Activities of personal study by students	Evaluation activities (testing, monitoring controls ...)
	Module	Subject	ECTS						
Specific knowledge Module	Ceramic materials	5							
	Metallic materials and special alloys	5							
	Polymers and composites	5							
	Characterisation of composition and microstructure	5							
	Characterisation of mechanical behaviour and other properties	5							
	Laboratory of advanced materials	5							
Applications and technologies Module	Biomaterials and biomedical applications	4							
	Nanoscience and Nanotechnology	4							
	Materials technology Lab: from materials to products & devices	5							
	Innovation and entrepreneurship seminars	3							
Optative Module	Management of projects, quality and intellectual property	4							
	Surface Engineering	5							
	Corrosion and materials degradation	5							
	Modelling and simulation of materials	5							
	Manufacturing technologies	5							
Master Thesis	Bonding Technologies	5							
	Formulations	5							
Master Thesis (TFM)		30							

The gradual increase in teaching in English is proposed as an improvement (see Annex Improvement Plan).

Academic results (evaluation of competences and grade qualifications) are used in a systematic way in order to identify the adequacy of the teaching methodology (see Criterion 1: Teaching coordination mechanisms). These information is includes in monitoring reports (see Criterion 3).

The students' surveys (included in DOCENTIA program) are applied in the final stage of each course and for all participant teachers. In general, the results of the surveys of student satisfaction are totally favorable in all areas assessed for all degrees (see Table C4-3). The results related to the teaching methodologies of the three masters during the last 3 academic years are in-between 64 and 86 (see table C2-7):

Table C2-7. DOCENTIA surveys results: Teaching methodology					
Item	Description	Academic year	MQF	MQA	MCiEM
Question 3	The planned tasks (practical theory, individual work, group work, etc.) are related to what the teacher intends to learn	2014-15	79	79	79
		2015-16	76	84	79
		2016-17	72	86	79
Question 18	The methodology (exposition of concepts, problem solving, practical work, etc.) used by the teacher is diverse	2014-15	73	73	73
		2015-16	72	77	76
		2016-17	64	77	71

[See evidence 2-i=4c, DOCENTIA MQF-MQA-MCiEM]

**Criterion 2.4 Support and assistance**

There are resources available to provide individual assistance, advice and support for all students.

The allocated advice and guidance (both technical and general) on offer assist the students in achieving the learning outcomes and in completing the course within the scheduled time.

**Academic guidance services adequately support the learning process and those of professional guidance facilitate their incorporation into the labor market. [AQU STD 5.1]**

The University Mission of IQS includes among the objectives for the best fulfillment of its mission, the personalized attention to the students (<https://www.iqs.edu/en/about-iqs/presentation/mission>). For this reason, the tutorial action has always been a distinctive feature of IQS, as has been the case of the URL, since it was founded 25 years ago.

At IQS, the tutorial action begins with the attention of the candidates with the various information systems and the welcome sessions that facilitate the incorporation into the center. During the stay at IQS, the students of the different programs have academic and professional orientation counseling (work placement and incorporation into the workplace). <https://www.iqs.edu/en/services/information-and-guidance>

Advice during the admission process: the accompanying actions begin at the moment the candidate requests information from the Master. In this first stage, the candidate is attended by the person in charge of Masters in the Department of Communication and Corporate Marketing. The basic academic and administrative information is given to the candidate and is recommended to attend one of the Master's information sessions, which is always attended by the coordinator of the Master's. They are also offered the possibility of holding an interview with the coordinator, if they have no options to attend the information session.

When the candidate asks for admission, the Admissions Committee assesses the petition and proceeds to communicate the result in writing. The Coordinator is included in this Commission.

Once the candidate has successfully passed the admission process, prior to enrollment, the coordinator contacts the candidate to finish specifying particular aspects of their enrollment or other issues that may arise. All this process, which takes place between the months of January and September, guarantees that before the beginning of the course (first week of October), all students have as academic referents the Coordinators of the Masters, at the same time that it allows the Coordinators to know all the students enrolled.

Welcome session: organized jointly by all students of new incorporation to the IQS Master, by the General Director and the Deans of the two centers (IQS-SE and IQS-SM), with the assistance of the coordinators of each of the Masters. The session also invites teachers to

assist. This session is held at noon on the first school day of the Masters. The Welcome Event is important because it is a direct contact with the IQS Management Team, which is used to present the Institution and to inform the IQS Mission, especially in regard to the characteristics of its training model. The event concludes with a brief refreshment that allows students to interact, informally, among them, with part of the professors' faculty and with the management team.

Personalized tutoring: The system established in IQS for Personalized Tutorials allows students to attend individually in terms of their academic, professional or personal orientation. In the case of the Master's Degrees, it has been established that the tutor of the Master's students will be the Master's Coordinator. However, in the case of students who have passed the Degree at IQS, the option of maintaining the same tutor is included until completion of the studies at IQS. The tutor will be able to deal with any matter that the student may need in order to overcome some particular difficulty and to orientate him about the Master's Final Project. The tutor can also act as an intermediary of the student in front of the governing bodies of the Center, Academic Authorities and other entities of the IQS and the *URL* University.

Individual attention to the student: within the planned educational activities, all the subjects contemplate a time of dedication of the professors to the students of individual way or in small groups.

Course coordination: the Master's coordinator manages the different activities that affect the class group and collaborates with the follow-up and attention to those studied.

Practices in companies: during the period of internships, in addition to the monitoring carried out from the Professional Careers Service, the students have a tutor within the company. This tutor monitors the tasks to be carried out in order to achieve the objectives set (see Criterion 4).

Guidance for the accomplishment of the TFG or TFM: all the students have specific advice for the accomplishment of their Final Work of Studies (TFG or TFM) (see Criterion 4).

Advice for mobility programs: the International Relations Service (RRII) offers guidance and support to students that participate in mobility programs (Outgoing). Likewise, this office manages the arrival of students from foreign universities who choose to take part of their studies at IQS (Incoming).

This service provides the necessary information about the bureaucratic processes to be carried out (applications, visas, etc.) and other academic procedures.

<https://www.iqs.edu/en/international-students/international-relations-office>

The list of foreign universities with which IQS has an established agreement is public through the IQS website: <https://www.iqs.edu/en/international-students/study-abroad-outgoing>



Orientation for the profession and the labor insertion: the Professional Career Service, in addition to the tutoring of internships activities, organizes different activities aimed at the professional orientation and the labor insertion of the students, at the same time that it manages the Job Exchange (first occupation).

<https://www.iqs.edu/en/services/professional-careers>

This information is included in a report presented at IQS-SE Academic Board.

During 2016-17 academic year:

XI IQS Business Forum (March 8, 2017), a meeting space where companies of different sectors and industrial activities and students of IQS meet throughout the day. Around 300 students and about thirty companies established a win-win relationship, in which students could know first hand the offers and demands of the current labor market in Spain.

The IQS Business Forum began in 2000. In the current edition of the IQS Business Forum, a large number of companies from the industrial sector, services, audits, consultancies and large consumer companies that belong to the IQS Business Foundation have participated, which shows the degree of involvement involved It is between both parties. These are examples, among others: Alfa Consulting, BASF, Caixa d'Enginyers, Mutua e Assoaciación, Caixa Bank, Carbueros Metálicos, Celsa Group, Covestro, Damm, Dow Chemical, Esteve, Equatorial Coca-Cola Bottling Company SL, Eurofragance , Ficosa, Givaudan, Grifols, Grupo Ferrer, IFF Benicarló SL, JJuan, Laboratorios Leti, Medichem, Miguel Torres, Technip.

[See evidence 2-k, Advice and suport]

The measures to avoid unequal treatment in the higher education institution are established at IQS and *Ramon Llull* University level.

[See evidence 2-l, Measures to avoid unequal treatment]

### 3. Exams: System, Concept & Organisation

**Criterion 3 Exams: System, concept and organisation**

Exams<sup>6</sup> are devised to individually measure to which extent students have reached the learning outcomes defined. Exams are structured to cover all of the intended learning outcomes (knowledge, skills and competences). Exams are module-related and offer students continuous feedback on their progress in developing competences.

The degree programme comprises a thesis/dissertation or final project which ensures that students work on a set task independently and at the level aimed for.

For each module, a form of assessment (including suitable alternatives, if any) has been defined. There are mechanisms in place which ensure that all students learn the details of what is required in order to pass the module (pre-examination elements, assignments etc.) no later than at the start of the module. Rules have been defined for re-sits, disability compensation measures, illness and other mitigating circumstances etc.

The number and distribution of the exams ensure that both the exam load and preparation times are adequate. All exams are organised in a way which avoids delays to student progression caused by deadlines, exam correction times, re-sits etc.

All exams are marked using transparent criteria. There are mechanisms in place which ensure that exams marked by different examiners are comparable. The higher education institution vouches for the quality in terms of relevance, content and structure of all student assignments completed outside the institution.

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<sup>6</sup> Exams are all methods of ascertaining to which extent the learning outcomes have been reached as well as any pre-examination elements, assignments etc., as set forth by the higher education institution in question.

**Training activities, teaching methodology and assessment system are appropriate and relevant to ensure the achievement of the expected learning outcomes. [AQU STD 6.2]**

This system evaluation, established during the program design with the participation of the teaching staff to cover all of the intended learning outcomes, is included in the teaching guide of each subject / course syllabi (available in an updated way on the IQS web page of each program).

[See evidence 1-a, MQF-MQA-MCiEM]

[See evidence 3-a=1-d, Study plan / Module descriptions MQF-MQA-MCiEM]

IQS School of Engineering has defined the following evaluation systems for all the Bachelor Programs and Master's Degrees:

**Final Exam:** type of evaluation that is usually done on paper or in computer at the end of the academic period of a subject, whose objective is to measure the knowledge, skills and / or aptitudes of the student. They appear scheduled in the Academic Calendar of each course.

**Monitoring activities:** These are controls and / or activities carried out throughout the course on an individual basis by the student, which will be corrected and scored by the teacher. This evaluation system guarantees students to get profit of the course and the achievement of the objectives proposed in the subject. At the same time, it allows to continuously monitor their learning process and assess their progress at all times.


**Projects and presentations:** Individual or group realization of specific works commissioned by the professor and the oral and / or written presentation of the same.

**Experimental or field work:** Consists in the realization of laboratory activities or similar (computer practices, projects, etc.) by the student, under the direct supervision of a professor, in regular hours and independent of the ordinary session of exposition of concepts.

**Participation:** Active participation by the student in the ordinary dynamics of the different types of face-to-face training activities.

## MQF


MQF evaluation system is summarized in the following figure:

	<b>Master's Degree in Pharmaceutical Chemistry</b>		Final Exams	Activities to monitor learning	Works and presentations	Experimental or field work	Participation
<b>Module</b>	<b>Subject</b>	<b>ECTS</b>					
<b>M1 Transversal Module</b>	Pharmaceutical Chemistry	5					
	Project Management	5					
<b>M2 Drug Research Module</b>	Molecular Design	5					
	Advanced Organic Synthesis	5					
	Identification and Structural Characterization	5					
	Integrated Laboratory I	5					
<b>M3 Drug Production Module</b>	Process Chemistry	5					
	Drug Analysis	5					
	Quality Management	5					
	Integrated Laboratory II	5					
<b>M4 Optional Subjects Module</b>	Photochemistry	5					
	Pharmacology for Chemists	5					
	Experimental Design	5					
	Advanced Drug Delivery	5					
	Regulatory Affairs in the Pharmaceutical Industry	5					
<b>M5 Master's Thesis Module</b>	Master Thesis (TFM)	30					

In the subjects of M1 to M4 Modules the weight of Final Exams is in-between 40-50%, the Activities to Monitor Learning in-between 15-30%, Works and Presentations in-between 20-30%, Experimental or Field Work is 50% in Integrated Laboratories and Participation is around 5%. In the case of the TFM the weights are: Final Exam (30%), Works and Presentations (20%) and Experimental or Field Work (50%).

## MQA


MQA evaluation system is summarized in the following figure:

	<b>University Master's Degree in Analytical Chemistry (MQA)</b>		Final Exam	Monitoring activities	Projects and presentations	Experimental or field work	Participation
	<b>COURSE</b>	<b>ECTS</b>					
<b>M1 TECHNOLOGICAL MODULE</b>	Identification and Structural Characterization	5					
	Advanced Chromatography	5					
	Spectrophotometry and Electroanalysis	5					
	Chemometrics	5					
	Analytical Technology Laboratory	5					
	Management of projects and laboratories	5					
<b>M2 MANAGEMENT MODULE</b>	Quality and information management	5					
<b>M3 SPECIFIC MODULE</b>	Environmental quality analysis	5					
	Agrofood analysis	5					
	Analysis of pharmaceutical products	5					
	Analysis of industrial products	5					
	Integration and analytical specialization in laboratory	5					
<b>M4 MASTER'S THESIS</b>	Master's Thesis	30					

In the subjects of Modules M1 to M3 the weight of Final Exams is in-between 40-50%, the Monitoring Activities in-between 15-30%, Projects and Presentations in-between 20-30%, Experimental or Field Work is 50% in Laboratories and Participation is around 5%. In the case of the TFM the weights are: Final Exam (30%), Projects and Presentations (20%) and Experimental or Field Work (50%).

## MCiEM

MCiEM evaluation system is summarized in the following figure:

	Master's Degree in Materials Science and Engineering		Final Exams	Activities to monitor learning	Works and presentations	Experimental or field work	Participation
	Module	Subject	ECTS				
Specific knowledge Module		Ceramic materials	5				
		Metallic materials and special alloys	5				
		Polymers and composites	5				
		Characterisation of composition and microstructure	5				
		Characterisation of mechanical behaviour and other	5				
		Laboratory of advanced materials	5				
Applications and technologies Module		Biomaterials and biomedical applications	4				
		Nanoscience and Nanotechnology	4				
		Materials technology Lab: from materials to products	5				
		Innovation and entrepreneurship seminars	3				
		Management of projects, quality and intellectual property	4				
Optative Module		Surface Engineering	5				
		Corrosion and materials degradation	5				
		Modelling and simulation of materials	5				
		Manufacturing technologies	5				
		Bonding Technologies	5				
		Formulations	5				
Master Thesis		Master Thesis (TFM)	30				

In the subjects of Modules M1 to M3 the weight of Final Exams is in-between 40-50%, the Monitoring Activities in-between 15-30%, Projects and Presentations in-between 20-30%, Experimental or Field Work is 50% in Laboratories and Participation is around 5%. In the case of the TFM the weights are: Final Exam (30%), Projects and Presentations (20%) and Experimental or Field Work (50%).

Grades are determined according to the following marks from 0 to 10 (*Real Decreto 1125/2003*):

- 0 – 4.9: Fail
- 5.0 – 6.9: Pass
- 7.0 – 8.9: High pass
- 9.0 - 10: Excellent

“Distinction” is given to students who have obtained grades equal or superior to 9.0. This number will not exceed the 5% of the total students in the course within academic year, except from the case in which the number of students in the course would be less than 20. In such case only one Distinction will be awarded.

Depending on the design of the different subjects, we use one or other forms of examination. In no case, taking into account the Bologna regulations, the **Final Exam** of a subject has weight in the final qualification greater of 40-50%. Consequently, the daily work of the students has a big impact in their qualifications.

The starting day of every subject, Faculty explain to the students the specific weight of each one of the forms of evaluation used in the calculation of the final note (the teaching guide is also included in the web page and in the corresponding Virtual Campus page, Moodle).

All exams are marked using transparent criteria and the students can review and receive the feedback of the corrections. IQS-SE master's degree program are implemented in single groups, for that reason, each activity is corrected by a single teacher.

The *monitoring activities* offer students continuous feedback on their progress in developing competences.

As for the regulations on possible re-sits, disability compensation for handicapped students, absence because of illness etc., IQS School of Engineering has regulations covering all these possible circumstances. Such regulations are public and can be found at the IQS Intranet.

[See evidence 3-d, Regulations for exams]

The two most important regulations (re-sits and absence because of illness) are translated in the next figure.

#### **Extraordinary master's examinations (re-sits)**

The student has four exam calls to approve any subject, one of which must necessarily be one of the ordinary exam calls of the course. Those exam calls that have been canceled by the student will not be counted.

The exam calls after the course in which you have obtained the schooling of the subject have the character of extraordinary and will always be two per course, one in January and one in July.

The extraordinary registration (paying the exam fee) is by academic year, unique and non-refundable, regardless of the exam calls that the student uses. The extraordinary registration will be made in the General Secretariat until the penultimate working day of attention to the public before the date of the corresponding examination.

The student can cancel any extraordinary call (January or July) by contacting the General Secretariat until the penultimate business day of service to the public before the scheduled examination date of the corresponding call. The student may cancel the two extraordinary calls of a course, if he considers it convenient.

In accordance with the previous paragraphs, the working day before the date of the examination will no longer be able to make the extraordinary registration or cancel the call.

Once the four calls have been exhausted, the student must request from the Permanent Commission of the Academic Board two additional ordinary calls (taking the course) or extraordinary ones (examination rights). Once the six calls have been exhausted, the student must drop out of the studies or submit an application to the Permanent Commission of the Academic Board, accompanied by a clear statement of reasons, so that their case is studied in particular.

#### **Absence of a final exam for justified cause**

Given the anticipation with which the dates of exams and their academic significance are known, only in very exceptional cases, such as illness, accident or legal imperatives, with a documented justification, will be assessed the possibility of enabling an alternative date.

The student who, for some justified reason of the above, cannot take a final exam must submit the documents justifying the absence, at the latest within two school days following his reinstatement, and ask the Dean to consider the possibility to opt for an alternative date for the exam. If the request is met, the Dean will ask the teacher of the subject to examine the student before 15 working days have passed since the exam date. The obtained qualification will appear in the ordinary act of the exam call. If the period of 15 working days after the exam date is exhausted, the student should contact the Permanent Commission of the Academic Board.

Concerning exam management, each academic year the proposed dates for the final exams are discussed with the different professors involved and also with the student's representatives in order to minimize possible coincidences and negative impacts on the study progress. The dates are published well in advance to the beginning of the course for the students to construct their own examination calendars. On the other hand, the monitoring tests and exams are discussed with the program coordinators to avoid coincidences and distribute them along the semester.

[See evidence 3-f, Exams schedules]

The results included in DOCENTIA surveys related to the evaluation system of the three masters during the last 3 academic years are in-between 75 and 89 (see table C2-8):

Table C2-8. DOCENTIA surveys results: Evaluation System					
Item	Description	Academic year	MQF	MQA	MCiEM
Question 13	The teacher appropriately applies the evaluation system included in the course syllabus	2014-15	81	81	81
		2015-16	76	77	80
		2016-17	75	82	89

[See evidence 2-i=4c, DOCENTIA MQF-MQA-MCiEM]

### ***Evaluation of basic, general, specific and transversal competences***

All the IQS-SE Faculty report the results of the evaluation of the competences. The course syllabus include the system of evaluation that is expected to use for each competence.

The matrix course is the name we use to describe the table Courses vs Competences.

The average result for each competence is calculated:

- including all the students enrolled in the course
- considering only the students that pass the course

To make a comparative analysis of the evolution of these average values, a competences grouping system has been chosen. This methodology was initiated for the ABET accreditation process. In this report, evaluation of basic, general, specific and transversal competences for MQF, MQA and MCiEM the competences grouping system has been established according ASIIN methodology.

ASIIN classifies the competencies of a Master in two groups: ASIIN Specialist (Specialist Competences) and Socials (Social Competences) competencies. In this report, a code has been assigned to each of these ASIIN competences. Thus, the 5 Specialist competencies are coded as SP1-SP5 while the 5 Social competences are coded as SO1-SO5.

## MQF

The evaluation of basic, general, specific and transversal competences of all the MQF students is available in the three editions that are carried out until now (2014-2015, 2015-2016 and 2016-2017) and of the average values for each course of all these competencies.

The tables presented below shows MQF competences groups according to the ASIIN categories:

Objectives-Module-Matrix for the degree programme Master's Degree in Pharmaceutical Chemistry (MQF) TC 09 – Chemistry - Master												
	ASIIN SSC	Intended Learning Outcomes[1] of the Degree Programme					Corresponding Modules					
Code	Specialist Competences							Module 1 Transversal	Module 2 Drug Research	Module 3 Drug Production	Module 4 Optional Subjects	Module 5 Master Thesis
	Graduates											
SP1	have deepened their <b>knowledge</b> in core subjects, special subjects or interdisciplinary subjects;	E1 - Demonstrate <b>knowledge</b> of the phases of the R&D of a drug, the main therapeutic groups and the pharmaceutical, pharmacokinetics phases and pharmacodynamics of a drug and apply in pharmaceutical chemistry										
		E3 - Have <b>knowledge</b> about patents in the pharmaceutical sector, its implications and application in drug development										
		E4 - Demonstrate <b>knowledge</b> of project management and tools for planning, implementation and monitoring of projects for application in pharmaceutical chemistry										
		E6 - Demonstrate <b>knowledge</b> of the techniques of computer-aided molecular design for application in drug research										
		E8 - Demonstrate <b>knowledge</b> of retrosynthetic analysis and new reactions and synthetic methodologies for application in drug research										
		E10 - Demonstrate advanced <b>knowledge</b> of NMR, X-ray diffraction and thermal analysis for application in drug research										
		E13 - Demonstrate <b>knowledge</b> of the development of synthetic processes on an industrial scale to be applied in the production of drugs										
SP2	have knowledge building up on a Bachelor's degree level in chemistry, which forms a basis for original and competent development and <b>implementation of ideas within a research area and</b>	E15 - Demonstrate advanced <b>knowledge</b> of analytical methods for raw materials, formulated products, active substances, excipients, impurities and degradation products enantiomers present in samples in the pharmaceutical field for application in the production of drugs										
		E17 - Demonstrate <b>knowledge</b> of the concepts and tools for quality management in laboratories and industry for application in the production of drugs										
		CB6 - Have and understand knowledge which provides the ground or opportunity for originality in developing and/or <b>applying ideas, often in a research context</b>										
SP3	have competences qualifying them <b>professionally</b> , e.g. to work as a chemist in industry or public service.  Such graduates are able to	CB10 - Understand the need for life-long learning in a self-directed or autonomous way										
		CG2 - Ability to perform a responsible practice of the profession										
		IT3 - Ability to assess the <b>impact of the use of chemistry in sustainable development of society</b>										
SP4	carry out <b>independent scientific work</b> as well as	E22 - Ability to plan, implement, manage and present a research project in the field of Pharmaceutical Chemistry										
		E23 - Ability to develop activities of fundamental and applied research and innovation in academic and industrial environments by integrating projects and interdisciplinary activities										
		E24 - Ability to apply and integrate advanced knowledge of the disciplines of Pharmaceutical Chemistry in the realization of a project of fundamental research or applied										
		E25 - Ability to apply advanced chemical methodologies and tools for research, development and production of products and services in the field of Pharmaceutical Chemistry										
		E26 - Ability to design, perform and interpret experiments in the field of Pharmaceutical Chemistry										
		E27 - Ability to obtain original results susceptible of being published and/or patented										
		E2 - Ability to associate the structure of drugs with their molecular mechanism of action, therapeutic activity and metabolism										
SP5	<b>apply their knowledge</b> and understanding, in order to <b>solve problems</b> in new and unaccustomed situations, involving broader (or multidisciplinary) issues.	E5 - Ability to define tasks, assign resources, define costs and track a project										
		E7 - Ability to raise, discern and apply advanced computer simulation techniques and use them to design compounds with biological activity										
		E9 - Ability to develop synthetic routes for multifunctional organic molecules by applying the "back step" method										
		E11 - Ability to interpret the results obtained with NMR, X-ray diffraction and thermal analysis to identify and determine the structure of chemical compounds										
		E12 - Ability to apply different computational, synthetic and spectroscopic techniques related to drug research										
		E14 - Ability to select industrializable synthetic routes taking into account economic, environmental and safety aspects										
		E16 - Ability to interpret the analytical results obtained on samples of the pharmaceutical sector (raw materials, formulated products, active substances, excipients) and the determination of impurities and degradation products enantiomers in that type of samples										
		E18 - Ability to lead, direct and manage projects in chemistry contemplating the requirements of a quality system										
		E19 - Ability to apply different synthetic, spectroscopic and analytical related to drug production techniques taking into account the implications of GLP / GMP environment and the ICH standards and pharmacopoeia in drug analysis										
		E20 - Demonstrate complementary skills useful for the practice of pharmaceutical chemistry										
		E21 - Ability to recognize or related in some way with the practice of pharmaceutical chemistry that will be useful for the development of professional practice related disciplines										
CB7 - That the students can apply their knowledge and their ability to <b>solve problems</b> in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field of study												
<b>Social Competences</b>												
	Graduates											
SO1	have acquired a capacity to carry out independent scientific work and to organise, conduct and <b>lead more complex projects</b> ;	CG1 - Ability to <b>lead, direct and manage projects</b> in academic or business environments adapting to the structures, needs and ways of operation of each institution										
SO2	have acquired scientific, technical and social competences (abstraction ability, systems analytical thinking, capacity for teamwork, <b>ability to communicate</b> , international and intercultural experience etc.), and are therefore prepared to <b>take on leadership responsibility</b> ;	CB9 - Communicate conclusions, and the reasons that sustain them, to specialized and non-specialized audiences in a clear and unambiguous way										
		IT1 - Ability to communicate in English and use English as a working language										
SO3	can combine and <b>independently</b> apply specialised knowledge in various component disciplines, in order to organise, work on and manage complex problems;	IT2 - Ability to <b>lead and direct teams</b>										
SO4	are also capable of <b>making decisions, based on incomplete or limited information</b> and	CB7 - Apply their knowledge and their ability to solve problems in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field of study										
		CB8 - <b>Integrate knowledge and deal with the complexity of formulating judgments based on information which, being incomplete or limited</b> , includes reflections on social and ethical responsibilities related to the application of their knowledge and judgments										
SO5	take into account <b>ethical responsibility</b> in their decisions.	CB8 - <b>Integrate knowledge and deal with the complexity of formulating judgments based on information which, being incomplete or limited</b> , includes reflections on social and <b>ethical responsibilities</b> related to the application of their knowledge and judgments										
<a href="#">[1] See Section 2.1 „Programme Objectives and Learning Outcomes“ of the General Criteria for the Accreditation of Degree Programmes of ASIIN, as of 28.03.2014</a>												



The values of ASIIN SP1-SP5 and SO1-SO5 competences for the 2014-2015, 2015-2016 and 2016-2017 academic year calculated for the courses of the two first semesters of MQF (60 ECTS) are summarized in the next table:

	ASIIN SSC	Intended Learning Outcomes of the Degree Programme	Mean value of competences		
Code	Specialist Competences				
	Graduates		2016-2017	2015-2016	2014-2015
SP1	have deepened their <b>knowledge</b> in core subjects, special subjects or interdisciplinary subjects;	E1, E3, E4, E6, E8, E10, E13, E15, E17	8,08	8,28	7,83
SP2	have knowledge building up on a Bachelor's degree level in chemistry, which forms a basis for original and competent development and <b>implementation of ideas within a research area</b> and	CB6	7,93	8,29	7,65
SP3	have competences qualifying them <b>professionally</b> , e.g. to work as a chemist in industry or public service.	CB10, CG2, T3	8,41	9,08	8,81
	Such graduates are able to				
SP4	carry out <b>independent scientific work</b> as well as	E22, E23, E24, E25, E26, E27	N/A	N/A	N/A
SP5	<b>apply their knowledge</b> and understanding, in order to <b>solve problems</b> in new and unaccustomed situations, involving broader (or multidisciplinary) issues.	E2, E5, E7, E9, E11, E12, E14, E16, E18, E19, E20, E21, CB7	8,07	8,45	7,87
Code	Social Competences				
	Graduates		2016-2017	2015-2016	2014-2015
SO1	have acquired a capacity to carry out independent scientific work and to organise, conduct and <b>lead more complex projects</b> ;	CG1	8,15	7,95	7,80
SO2	have acquired scientific, technical and social competences (abstraction ability, systems analytical thinking, capacity for teamwork, <b>ability to communicate</b> , international and intercultural experience etc.), and are therefore prepared to take on <b>leadership responsibility</b> ;	CB9, T1, T2	8,40	8,77	8,52
SO3	can combine and <b>independently</b> apply specialised knowledge in various component disciplines, in order to organise, work on and manage complex problems;	CB7	8,01	8,38	7,74
SO4	are also capable of <b>making decisions, based on incomplete or limited information</b> and	CB8	7,70	8,28	7,58
SO5	take into account <b>ethical responsibility</b> in their decisions.	CB8	7,70	8,28	7,58

The following conclusions can be drawn:

- 1) There are no values for SP4 because it is associated with Specific Competences E22-E27, assigned exclusively to the TFM. This competence will be analyzed in the section corresponding to the TFM.
- 2) The value of the ASIIN SP1, SP2, SP3, SP5 and SO1-SO5 competences is higher than 7.5.
- 3) The values of the ASIIN competences of the 2015-2016 academic year are slightly higher than those for the 2016-2017 and 2014-2015 academic year. These results are according with the opinions expressed by the MQF faculty during the coordination meeting.
- 4) All values of the ASIIN competencies of the 60 ECTS of the first year of the MQF are located in the area of the high pass is a good example of the achievement of the educational objectives set out in MQF.

## MQA

The evaluation of basic, general, specific and transversal competences of all the MQA students is available in the three editions that are carried out until now (2014-2015, 2015-2016 and 2016-2017) and of the average values for each course of all these competencies.

The tables presented below shows MQA competences groups according to the ASIIN categories.

Objectives-Module-Matrix for the degree programme Master's Degree in Analytical Chemistry (MQA) TC 09 – Chemistry - Master					
ASIIN SSC	Intended Learning Outcomes[1] of the Degree Programme				
Specialist Competences		M 1 Technological Module	M 2 Management Module	M 3 Specific Module	M 4 Master's Thesis
Graduates					
have deepened their knowledge in core subjects, special subjects or interdisciplinary subjects;	E1 - Demonstrate advanced knowledge of NMR, X-ray diffraction and thermal analysis for designing, applying and interpreting analytical methods. E3 - Demonstrate advanced knowledge of gas chromatography, liquid chromatography, mass spectrometry and electrophoretic techniques for designing, applying and interpreting analytical methods. E5 - Demonstrate advanced knowledge of atomic and molecular spectroscopies, voltamperometry, voltammetry and other advanced electrochemical techniques for designing, applying and interpreting analytical methods. E7 - Demonstrate advanced knowledge of statistical techniques, design of experiments and process optimization for designing and developing analytical methods. E9 - Demonstrate knowledge of project management and tools for planning, implementing and monitoring projects. E11 - Demonstrate knowledge of Quality Management concepts and tools for its application to analysis laboratories and industry in general. E13 - Demonstrate advanced knowledge of analytical methods for determining the composition of environmental samples (air, water, soil, sediments, waste, ...), for identifying and quantifying pollutants in these samples, as well as of specific analytical techniques for the environment. E15 - Demonstrate advanced knowledge of analytical methods for the characterization of raw materials, formulated products, active pharmaceutical ingredients and excipients, and the identification and quantification of impurities, enantiomers and degradation products present in pharmaceutical samples. E17 - Demonstrate advanced knowledge of analytical methods for determining composition and functional properties of food, and for identifying and quantifying impurities, foreign substances and residues in samples of food and agricultural products. E19 - Demonstrate advanced knowledge of analytical methods for the determination of majority and minority components, impurities and functional properties in raw materials, metals, polymers, ceramics and formulated products as well as of specific analytical techniques for these types of samples.				
have knowledge building up on a Bachelor's degree level in chemistry, which forms a basis for original and competent development and implementation of ideas within a research area and	CB6 - Have and understand knowledge which provides the ground or opportunity to be innovative in the development and/or application of ideas, often in a research context				
have competences qualifying them professionally, e.g. to work as a chemist in industry or public service.	CB10 - Understand the need for life-long learning in a self-directed or autonomous way. CG2 - Ability to perform a responsible practice of the profession				
Such graduates are able to	T3 - Ability to assess the impact of the use of chemistry in the sustainable development of society				
carry out independent scientific work as well as	E21 - Ability to plan, implement, manage and present a research project in the Analytical Chemistry field E22 - Ability to develop activities of fundamental and applied research and of innovation in academic and industrial environments integrating projects and interdisciplinary activities E23 - Ability to apply and integrate advanced knowledge of the Analytical Chemistry disciplines in the realization of a project of fundamental or applied research E24 - Ability to apply advanced chemical methodologies and tools for research, development and production of products and services in the Analytical Chemistry field E25 - Ability to design, perform and interpret experiments in the Analytical Chemistry field E26 - Ability to obtain original results susceptible of being published				
apply their knowledge and understanding, in order to solve problems in new and unaccustomed situations, involving broader (or multidisciplinary) issues.	E2 - Ability to interpret the results obtained with NMR, X-ray diffraction and thermal analysis to identify and determine the structure of chemical compounds E4 - Ability to interpret the results obtained with chromatographic, electrophoretic techniques and mass spectrometry in the identification and quantitative determination of chemical compounds E6 - Ability to interpret the results obtained with advanced techniques of atomic and molecular spectroscopies, voltamperometry, voltammetry and other advanced electrochemical techniques in the quantitative determination of chemical compounds detected in samples. E8 - Ability to interpret the results obtained applying statistical techniques, design of experiments and process optimization methods to experimental data obtained in an analytical chemistry laboratory E10 - Ability to define tasks, assign resources, define costs and monitoring a project E12 - Ability to lead, direct and manage projects in chemistry according to the requirements of a quality system E14 - Ability to interpret the analytical results obtained in environmental samples (air, water, soil, sediments, waste, ...) and of pollutants detected in these samples E16 - Ability to interpret the analytical results obtained in pharmaceutical samples (raw materials, formulated products, active pharmaceutical ingredients, excipients) and in the determination of impurities, enantiomers and degradation products in these samples E18 - Ability to interpret the analytical results obtained in food samples (composition and functional properties) as well as and in the identification and quantification of impurities, foreign substances and residues in these samples. E20 - Ability to interpret the analytical results obtained in samples of raw materials, metals, polymers, ceramics and formulated products obtained with general analytical techniques or specific for these types of samples. CB7 - Apply their knowledge and their ability to solve problems in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field of study				
Social Competences					
Graduates					
have acquired a capacity to carry out independent scientific work and to organise, conduct and lead more complex projects;	CG1 - Ability to lead, direct and manage projects in academic or business environments adapting to the structures, needs and ways of operation of each institution				
have acquired scientific, technical and social competences (abstraction ability, systems analytical thinking, capacity for teamwork, ability to communicate, international and intercultural experience etc.), and are therefore prepared to take on leadership responsibility	CB9 - Communicate conclusions, and the reasons that sustain them, to specialized and non-specialized audiences in a clear and unambiguous way. T1 - Ability to communicate in English and use English as a working language T2 - Ability to lead and direct teams				
can combine and independently apply specialised knowledge in various component disciplines, in order to organise, work on and manage complex problems;	CB7 - Apply their knowledge and their ability to solve problems in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field of study				
are also capable of making decisions, based on incomplete or limited information and	CB8 - Integrate knowledge and deal with the complexity of formulating judgments based on information which, being incomplete or limited, includes reflections on social and ethical responsibilities related to the application of their knowledge and judgments				
take into account ethical responsibility in their decisions.	CB8 - Integrate knowledge and deal with the complexity of formulating judgments based on information which, being incomplete or limited, includes reflections on social and ethical responsibilities related to the application of their knowledge and judgments				
[1] See Section 2.1 „Programme Objectives and Learning Outcomes“ of the General Criteria for the Accreditation of Degree Programmes of ASIIN, as of 28.09.2014					

The values of ASIIN SP1-SP5 and SO1-SO5 competences for the 2014-2015, 2015-2016 and 2016-2017 academic year calculated for the courses of the two first semesters of MQA (60 ECTS) are summarized in the next table:.

Objectives-Module-Matrix for the degree programme Master's Degree in Analytical Chemistry (MQA)					
TC 09 – Chemistry - Master					
	ASIIN SSC	Intended Learning Outcomes[1] of the Degree Programme	Mean value of competences		
Code	Specialist Competences				
	Graduates		2016-2017	2015-2016	2014-2015
SP1	have deepened their <b>knowledge</b> in core subjects, special subjects or interdisciplinary subjects;	E1 E3 E5 E7 E9 E11 E13 E15 E17 E19	7,2	7,7	7,9
SP2	have knowledge building up on a Bachelor's degree level in chemistry, which forms a basis for original and competent development and <b>implementation of ideas within a research area and</b>	CB6	7,4	7,8	7,9
SP3	have competences qualifying them <b>professionally</b> , e.g. to work as a chemist in industry or public service.	CB10 CG2 T3	7,7	8,0	8,1
	Such graduates are able to				
SP4	carry out <b>independent scientific work</b> as well as	E21-E22-E23-E24-E25-E26	N/A	N/A	N/A
SP5	<b>apply their knowledge</b> and understanding, in order to <b>solve problems</b> in new and unaccustomed situations, involving broader (or multidisciplinary) issues.	E2 E4 E6 E8 E10 E12 E14 E16 E18 E20 CB7	7,8	8,1	7,9
	Social Competences				
	Graduates				
SO1	have acquired a capacity to carry out independent scientific work and to organise, conduct and <b>lead more complex projects</b> ;	CG1	7,8	8,4	8,2
SO2	have acquired scientific, technical and social competences (abstraction ability, systems analytical thinking, capacity for teamwork, <b>ability to communicate</b> , international and intercultural experience etc.), and are therefore prepared to take on <b>leadership responsibility</b> ;	CB9 T1 T2	7,9	8,3	8,4
SO3	can combine and <b>independently</b> apply specialised knowledge in various component disciplines, in order to organise, work on and manage complex problems;	CB7	7,5	7,9	7,9
SO4	are also capable of <b>making decisions, based on incomplete or limited information</b> and	CB8	7,6	8,0	8,0
SO5	take into account <b>ethical responsibility</b> in their decisions.	CB8	7,6	8,0	8,0
<a href="#">[1] See Section 2.1 „Programme Objectives and Learning Outcomes“ of the General Criteria for the Accreditation of Degree Programmes of ASIIN, as of 28.03.2014</a>					

The following conclusions can be drawn:

- There are no values for SP4 because it is associated with Specific Competences E22-E27, assigned exclusively to the TFM. This competence will be analyzed in the section corresponding to the TFM.
- The value of the ASIIN SP1, SP2, SP3, SP5 and SO1-SO5 competences is higher than 7.5, except SP1 and SP2 competitions for the 2016/17 course, which obtain a rating of 7.2 and 7.4, respectively.

- A slight decrease in the values of the competences of the 2016/17 course is observed in relation to the previous two courses, coinciding with the opinions expressed by the MQA faculty during the coordination meeting.
- All the values of the ASIIN competences of the 60 ECTS of the first year of the MQA are located in the area of the high pass. This is an indicator that the educational objectives set out in MQA are being achieved.

## MCiEM

The evaluation of basic, general, specific and transversal competences of all the MCiEM students is available in the three editions that are carried out until now (2014-2015, 2015-2016 and 2016-2017) and of the average values for each course of all these competencies.

The tables presented below shows MCiEM competences groups according to the ASIIN categories.

ASIIN SSC		Intended Learning Outcomes[1] of the Degree Programme	Corresponding Modules				
Code	Specialist Competences		Module 1 Specific knowledge	Module 2 Applications and	Module 3 Optional Subjects	Module 4 Master Thesis	
	Graduates						
SP1	have deepened their <b>knowledge</b> in core subjects, special subjects or interdisciplinary subjects;	E1 - Poseer conocimientos de los distintos tipos de materiales cerámicos, su síntesis, procesamiento, estructura y propiedades, para su aplicación en Ingeniería de Materiales, tanto a nivel industrial como de investigación.					
		E3 - Poseer conocimientos de los distintos tipos de materiales metálicos y aleaciones especiales, su obtención, procesamiento, estructura y propiedades, para su aplicación en Ingeniería de Materiales, tanto a nivel industrial como de investigación.					
		E5 - Poseer conocimientos de los distintos tipos de polímeros y materiales compuestos, su obtención, procesamiento, estructura y propiedades, para su aplicación en Ingeniería de Materiales, tanto a nivel industrial como de investigación.					
		E7 - Poseer conocimientos de las técnicas más comunes espectroscópicas, de difracción, microscopía y de superficies, así como sus limitaciones, para la caracterización de cerámicas, metales, polímeros y materiales compuestos					
		E9 - Poseer conocimientos de las técnicas más comunes de caracterización mecánica, superficial, eléctrica y óptica, así como sus limitaciones, para la caracterización de cerámicas, metales, polímeros y materiales compuestos					
		E12 - Poseer conocimientos avanzados de biomateriales, así como de las técnicas más relevantes de preparación y procesamiento, para su uso en					
		E14 - Poseer conocimientos de las técnicas más relevantes de preparación y procesamiento de nanomateriales, así como las técnicas de caracterización y el manejo de equipos experimentales avanzados relacionados con la nanotecnología, para el desarrollo de nuevos productos y dispositivos					
		E17 - Poseer conocimientos de las distintas etapas que integran un proyecto emprendedor y de las herramientas para valorar las necesidades del mercado, para la asignación de los recursos necesarios en cada fase, la definición de los costes asociados y la identificación de riesgos					
		E19 - Poseer conocimientos de herramientas para la planificación, gestión y seguimiento de proyectos, de los principales sistemas de calidad, las herramientas de gestión de la información y estrategias de propiedad intelectual, para su aplicación en proyectos industriales basados en nuevos					
		E21 - Poseer conocimientos complementarios de utilidad, incluyendo aspectos teóricos y prácticos, para la práctica de la Ciencia e Ingeniería de Materiales					
SP2	have knowledge building up on a Bachelor's degree level in chemistry, which forms a basis for original and competent development and <b>implementation of ideas within a research area</b> and	CB6 - Have and understand knowledge which provides the ground or opportunity for originality in developing and/or <b>applying ideas, often in a research context</b>					
SP3	have competences qualifying them <b>professionally</b> , e.g. to work as a chemist in industry or public service.	CB10 - Understand the need for life-long learning in a self-directed or autonomous way ICG2 - Ability to perform a responsible practice of the profession IT3 - Ability to assess the impact of the use of chemistry in sustainable development of society					
SP4	Such graduates are able to  carry out <b>independent scientific work</b> as well as	E22 - Capacidad de reconocer las disciplinas afines y relacionadas de algún modo con la práctica de la Ciencia e Ingeniería de Materiales que le van a resultar de utilidad para el desarrollo de su práctica profesional					
		E23 - Capacidad para planificar, realizar, gestionar y presentar un proyecto de investigación en el área de la Ciencia e Ingeniería de Materiales					
		E24 - Capacidad para desarrollar actividades de investigación fundamental y aplicada, y de innovación en entornos académicos e industriales integrando proyectos y actividades interdisciplinarios					
		E2 - Capacidad para proponer la síntesis o método de procesamiento para obtener cerámicas avanzadas, que permitan resolver problemas en el ámbito industrial y/o en el estudio de nuevos materiales					
SP5	apply their <b>knowledge</b> and understanding, in order to <b>solve problems</b> in new and unaccustomed situations, involving broader (or multidisciplinary) issues.	E4 - Capacidad para explicar el efecto de los elementos aleantes y la relación entre microestructura-propiedades y las técnicas para modificarlas					
		E6 - Capacidad para establecer la relación entre la estructura de un polímero o material compuesto y sus propiedades, así como para seleccionarlos para la fabricación de piezas mediante métodos comunes de procesamiento, comprendiendo, controlando y gestionando tales operaciones					
		E8 - Capacidad para seleccionar la técnica de análisis más adecuada en la caracterización de la composición y microestructura de materiales concretos, así como interpretar un procedimiento analítico y caracterizarlo mediante la definición de parámetros adecuados					
		E10 - Capacidad para seleccionar la técnica de análisis más adecuada en la caracterización mecánica, superficial, eléctrica y óptica de materiales concretos, así como para interpretar un procedimiento analítico y caracterizarlo mediante la definición de parámetros adecuados					
		E11 - Capacidad para diseñar, planificar y realizar experimentos para sintetizar materiales concretos, así como para interpretar los resultados obtenidos en los experimentos realizados para determinar la estructura de estos materiales					
		E13 - Capacidad para seleccionar biomateriales y proponer técnicas de caracterización adecuadas, demostrando, en un contexto especializado, una comprensión detallada y fundamentada de los aspectos teóricos y prácticos y de la metodología de trabajo					
		E15 - Capacidad para comprender el comportamiento distinto de estructuras nanométricas respecto a situaciones convencionales en base a los					
		E16 - Capacidad para diseñar, planificar y realizar experimentos para aplicar materiales concretos a productos de uso industrial o dispositivos, así como para interpretar los resultados obtenidos para determinar la estructura de estos materiales					
		E18 - Capacidad para identificar y evaluar oportunidades de negocio en el ámbito de los materiales					
		E20 - Capacidad para definir las distintas tareas que integran un proyecto, asignar los recursos/costes para cada una de ellas, así como para definir qué se considera materia patentable en ciencia e ingeniería de materiales					
		CB7 - That the students can apply their knowledge and their ability to <b>solve problems</b> in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field of study					
Social Competences							
	Graduates						
SO1	have acquired a capacity to carry out independent scientific work and to organise, conduct and <b>lead more complex projects</b> ;	ICG1 - Ability to <b>lead, direct and manage projects</b> in academic or business environments adapting to the structures, needs and ways of operation of each institution					
SO2	have acquired scientific, technical and social competences (abstraction ability, systems analytical thinking, capacity for teamwork, <b>ability to communicate</b> , international and intercultural experience etc.), and are therefore prepared to take on <b>leadership responsibility</b> ;	CB9 - Communicate conclusions, and the reasons that sustain them, to specialized and non-specialized audiences in a clear and unambiguous way IT1 - Ability to communicate in English and use English as a working language					
SO3	can combine and <b>independently</b> apply specialised knowledge in various component disciplines, in order to organise, work on and manage complex problems;	IT2 - Ability to <b>lead and direct teams</b> CB7 - Apply their knowledge and their ability to solve problems in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field of study					
SO4	are also capable of <b>making decisions, based on incomplete or limited information</b> and	ICB8 - <b>Integrate knowledge and deal with the complexity of formulating judgments based on information which, being incomplete or limited,</b> includes reflections on social and ethical responsibilities related to the application of their knowledge and judgments					
SO5	take into account <b>ethical responsibility</b> in their decisions.	ICB8 - <b>Integrate knowledge and deal with the complexity of formulating judgments based on information which, being incomplete or limited,</b> includes reflections on social and <b>ethical responsibilities</b> related to the application of their knowledge and judgments					

The values of ASIIN SP1-SP5 and SO1-SO5 competences for the 2014-2015, 2015-2016 and 2016-2017 academic year calculated for the courses of the two first semesters of MCiEM (60 ECTS) are summarized in the next table:

	ASIIN SSC	Intended Learning Outcomes of the Degree Programme	Mean value of competences		
Code	Specialist Competences				
	Graduates		2016-2017	2015-2016	2014-2015
SP1	have deepened their <b>knowledge</b> in core subjects, special subjects or interdisciplinary subjects;	E1, E3, E5, E7, E9, E12, E14, E17, E19, E21	7,23	7,27	7,81
SP2	have knowledge building up on a Bachelor's degree level in chemistry, which forms a basis for original and competent development and <b>implementation of ideas within a research area</b> and	CB6	6,71	7,04	7,93
SP3	have competences qualifying them <b>professionally</b> , e.g. to work as a chemist in industry or public service.	CB10, CG2, T3	7,54	7,79	7,99
	Such graduates are able to				
SP4	carry out <b>independent scientific work</b> as well as	E22, E23, E24	7,99	7,71	8,2
SP5	<b>apply their knowledge</b> and understanding, in order to <b>solve problems</b> in new and unaccustomed situations, involving broader (or multidisciplinary) issues.	E2, E4, E6, E8, E10, E11, E13, E15, E16, E18, E20, CB7	7,40	7,27	7,92
Code	Social Competences				
	Graduates		2016-2017	2015-2016	2014-2015
SO1	have acquired a capacity to carry out independent scientific work and to <b>organise, conduct and lead more complex projects</b> ;	CG1	5,10	8,20	8,40
SO2	have acquired scientific, technical and social competences (abstraction ability, systems analytical thinking, capacity for teamwork, <b>ability to communicate</b> , international and intercultural experience etc.), and are therefore prepared to take on <b>leadership responsibility</b> ;	CB9, T1, T2	7,84	8,02	8,10
SO3	can combine and <b>independently</b> apply specialised knowledge in various component disciplines, in order to organise, work on and manage complex problems;	CB7	6,64	6,88	7,90
SO4	are also capable of <b>making decisions, based on incomplete or limited information</b> and	CB8	6,87	7,07	7,90
SO5	take into account <b>ethical responsibility</b> in their decisions.	CB8	6,87	7,07	7,90

The following conclusions can be drawn:

- 1) The value of the ASIIN SP1-SP5 and SO1-SO5 competences is higher than 6.6 in all cases except SO1 of the 2016-2017 course, which is 5.1. This value is due to a change of teacher in the subject "Materials Technology Laboratory: from materials to products and devices", which is the only one that shares the CG1 competition with the Master's Final Project.
- 2) In general the values of the ASIIN competences decrease from the 2014-2015 until the 2016-2017. This coincides with an increase in the levels required by MCEM faculty accorded during the coordination meetings.
- 3) The fact that all the values of the ASIIN competencies of the 60 ECTS of the first MCEM course are in the area of the high pass is a good example of the achievement of the educational objectives set forth in this Master's.

### ***Master's Thesis (Trabajo de Fin de Master, TFM)***

According to RD1393/2007 of October 29th, amended by RD 861/2010 of July 2nd, programs leading to obtaining master's degrees conclude with the preparation and public defense of a Master's Thesis (*Trabajo de Fin de Master, TFM*), which will take between 6 and 30 ECTS credits. For the Master's Degrees of the IQS School of Engineering (*Universitat Ramon Llull*) a total of 30 ECTS was chosen.

The Master's Thesis (hereinafter TFM) consists in conducting an individual research project or engineering project in an IQS research group. The thematic and methodology of TFM must conform to the objectives and competences of the corresponding Master. The offering of the subjects for the realization of TFM will take place before the start of the semester in which the TFM is developed. Based on this offer, students will contact the corresponding professor to arrange the embodiment of TFM.

With the same academic guarantees, and always under the guidance of an IQS professor, the TFM may be carried out in other institutions, such as other national or foreign universities, public and private research centers, or companies with which the corresponding agreement has been established.

The TFM will lead to a written report work and the presentation in front of an evaluation panel. The TFM is carried out in the last semester of the Master. Its ordinary duration is 6 months with the presentation and defense of the TFM. For the presentation and defense of the TFM students must have passed the total of ECTS for the remaining modules of the Master.

The Evaluation Panel (President, Secretary and Vocal) shall consist of the director of the work that will act as Vocal (case of co-directors only one of them will be part of the panel) and two professors (one member of the faculty of the Master's program and one external to it) proposed by the coordinator of the Master. Optionally may be part of the panel: an university professor (national or foreign universities) or a renowned professional of a company in the field of the TFM.

The Evaluation Panel shall be ratified by the Dean of IQS School of Engineering, which will send the form to the General Secretariat of IQS, which advertised the day and time of the defense and will send the pdf of the TFM report to the members of the panel.

TFM defense will be made public and duly announced. The student will have a maximum of thirty minutes to carry out the exposition and read the conclusions. The members of the Evaluation Panel will ask the questions they deem pertinent. Once finished the discussion, the student and the entire audience will leave the classroom and the members of the evaluation panel will proceed to evaluate and assign the qualification of the TFM. For this evaluation and qualification, the evaluation methods and percentages established in each of the Master's Degrees of the IQS School of Engineering will be used.

## MQF

During the 2016-2017 academic year 15 TFM were assigned: 11 TFM have been done in IQS (several in collaboration with other Departments of IQS-SE), 3 TFM have been done totally or partially abroad, 1 to a company. From these, 12 over 15 TFM has been presented (80%):

	Título TFM	Director	Fecha	Calificación
	Development of a polymeric patch to promote migration and proliferation of vascular cells	Dr. Jordi Martorell López, Dr. Salvador Borrós Gómez	28/09/2017	10 M.H.
	Progressive sunscreens	Dr. Santiago Nonell	17/05/2017	9,5 M.H.
	Ús del disseny d'experiències per la introducció de diversitat en sistemes pirido[2,3-d]pirimidínic mitjançant reacció de Suzuki selectiva	Dr. Raimon Puig de la Bellacasa, Dra. Gemma Gotor Navarra i Dra. Laura Fernández Ruano	20/07/2017	9,8 M.H.
	Development of New Immobilised Photoredox catalysis for continuous-flow application in fine chemical industry	Dr. José Ignacio Borrell Bilbao, Dra. Esther Alza Barrios (ERTFLOW-ICIQ), Dr. Miquel Àngel Pericàs Brondo (ERTFLOW-ICIQ)	29/09/2017	10 M.H.
	Tumour-selective dendritic nanoparticles for triple negative breast cancer therapy	Dr. Salvador Borrós Gómez, Dra. Natalie Artzi i Dra. Núria Oliva	07/07/2017	10 M.H.
	Implementació i validació d'un assaig bioquímic per avaluar l'activitat anti-dm1 de candidats a fàrmacs	Dr. Roger Estrada, Dr. Carlos Semino	29/09/2017	9 Exc.
	New oligopeptide-terminated amphiphilic vectors for gene delivery	Dr. Víctor Ramos Pérez	06/04/2017	10 M.H.
	Synthesis of $\alpha$ -Seleno ketones from Weinreb Amides and Lithium Carbenoids	Dr. David Sánchez García i Dr. Vittorio Pace	22/09/2017	10 M.H.
e	Síntesis de ligandos para nanopartículas	Jordi Besa, Dr. José I. Borrell	09/06/2017	8,6 Not.
	Study of pHMA-chol amphiphilic copolymers as solubilizing vehicles for delivery of poorly water-soluble drugs and as inhibitors of P-glycoprotein	Dr. Víctor Ramos Pérez	20/07/2017	9,5 Exc.
	Síntesis y evaluación biológica de NONOatos para el tratamiento de senescencia celular	Dr. José Ignacio Borrell Bilbao, Dr. Carlos Semino	20/07/2017	9,5 M.H.
	Development of techniques for the characterization of creams using synthetic-biocompatible membranes	Dr. Alberto Balfagón Costa	18/07/2017	9,1 Exc.

The next table shows the values of ASIIN SP1-SP5 and SO1-SO5 competences for the TFM competences calculated for 2014-2015, 2015-2016 and 2016-2017 academic year:

	ASIIN SSC	Intended Learning Outcomes of the Degree Programme	Mean value of competences		
Code	Specialist Competences				
	Graduates		2016-2017	2015-2016	2014-2015
SP1	have deepened their <b>knowledge</b> in core subjects, special subjects or interdisciplinary subjects;	E1, E3, E4, E6, E8, E10, E13, E15, E17	N/A	N/A	N/A
SP2	have knowledge building up on a Bachelor's degree level in chemistry, which forms a basis for original and competent development and <b>implementation of ideas within a research area</b> and	CB6	9,10	9,50	N/A
SP3	have competences qualifying them <b>professionally</b> , e.g. to work as a chemist in industry or public service.	CB10, CG2, T3	9,23	9,20	N/A
	Such graduates are able to				
SP4	carry out <b>independent scientific work</b> as well as	E22, E23, E24, E25, E26, E27	9,15	9,50	N/A
SP5	<b>apply their knowledge</b> and understanding, in order to <b>solve problems</b> in new and unaccustomed situations, involving broader (or multidisciplinary) issues.	E2, E5, E7, E9, E11, E12, E14, E16, E18, E19, E20, E21, CB7	9,20	9,50	N/A
Code	Social Competences				
	Graduates		2016-2017	2015-2016	2014-2015
SO1	have acquired a capacity to carry out independent scientific work and to organise, conduct and <b>lead more complex projects</b> ;	CG1	9,20	9,60	N/A
SO2	have acquired scientific, technical and social competences (abstraction ability, systems analytical thinking, capacity for teamwork, <b>ability to communicate</b> , international and intercultural experience etc.), and are therefore prepared to take on <b>leadership responsibility</b> ;	CB9, T1, T2	9,00	8,80	N/A
SO3	can combine and <b>independently</b> apply specialised knowledge in various component disciplines, in order to organise, work on and manage complex problems;	CB7	9,20	9,50	N/A
SO4	are also capable of <b>making decisions, based on incomplete or limited information</b> and	CB8	9,30	9,90	N/A
SO5	take into account <b>ethical responsibility</b> in their decisions.	CB8	9,30	9,90	N/A



The following conclusions can be drawn:

1) The values of the ASIIN SP2-SP5 and SO1-SO5 competences are higher than 9.00 and higher than those corresponding to the 1st year of the MQF (60 ECTS, two semesters). This increase is undoubtedly linked to our consideration of the TFM as a moment of great importance within the MQF by providing students with the necessary skills to join the research or production units of companies with immediate work capacity or Prepare the start of your Doctoral Thesis. In this sense, 30% of students in the first two promotions are currently conducting a Doctoral Thesis.

2) The values of the ASIIN SP4 competition focused on the ability to do independent scientific work, which combines the specific competences E22-E27 assigned to the TFM, are placed at 9,15 and 9,50 for the 2016- 2017 and 2015-2016 respectively. These high values show that the inclusion of a TFM of 30 ECTS, as a unique characteristic of the IQS Masters, makes our students acquire this competence at an excellent level in accordance with the tradition of IQS School of Engineering

## MQA

During the 2016-2017 academic year 6 TFM has been assigned and presented (100%):

MQA – Master thesis					
	TFM	TFM Director	Data	Grade	
1	Modified monoclonal antibodies with photodynamic agents	Dr. Santiago Nonell Marrugat	15/12/2016	9,8	Excel·lent
2	Desarrollo de un procedimiento para la determinación de hidrocarburos aromáticos policíclicos (HAPs) en té verde mediante técnicas cromatográficas	Dr. Francesc Broto Puig i Dr. Josep Lliberia Blasco	19/06/2017	8,0	Notable
3	Application of metallic nanoparticles in the development of electrochemical biosensors	Dr. Jordi Abella Iglesias i Dr. Sergi	17/07/2017	10,0	Mat. Honor
4	Estudi de la migració total en simulants aquosos per immersió total i de la migració específica de compostos pertanyents a la	Francesc Broto Puig	29/09/2017	9,6	Mat. Honor
5	Determinació de microplastics en aigua marina per retenció amb filtres i estudi del seu comportament com a concentradors de	Francesc Broto Puig	29/09/2017	9,6	Mat. Honor
6	Puesta a punto de un procedimiento para la determinación de N-Nitrosodietanolamina (NDELA), mediante cromatografía líquida	Francesc Broto Puig	29/09/2017	9,1	Excel·lent

The next table shows the values of ASIIN SP1-SP5 and SO1-SO5 competences for the TFM competences calculated for 2014-2015, 2015-2016 and 2016-2017 academic year:



Objectives-Module-Matrix for the degree programme Master's Degree in Analytical Chemistry (MQA)					
TC 09 – Chemistry - Master					
	ASIIN SSC	Intended Learning Outcomes[1] of the Degree Programme	Mean value of competences		
Code	Specialist Competences				
	Graduates		2016-2017	2015-2016	2014-2015
SP1	have deepened their <b>knowledge</b> in core subjects, special subjects or interdisciplinary subjects;	E1 E3 E5 E7 E9 E11 E13 E15 E17 E19	N/A	N/A	N/A
SP2	have knowledge building up on a Bachelor's degree level in chemistry, which forms a basis for original and competent development and <b>implementation of ideas within a research area</b> and	CB6	9,1	9,2	N/A
SP3	have competences qualifying them <b>professionally</b> , e.g. to work as a chemist in industry or public service.	CB10 CG2 T3	9,6	9,3	N/A
	Such graduates are able to				
SP4	carry out <b>independent scientific work</b> as well as	E21 E22 E23 E24 E25 E26	9,3	9,7	N/A
SP5	<b>apply their knowledge</b> and understanding, in order to <b>solve problems</b> in new and unaccustomed situations, involving broader (or multidisciplinary) issues.	E2 E4 E6 E8 E10 E12 E14 E16 E18 E20 CB7	9,4	9,9	N/A
	Social Competences				
	Graduates				N/A
SO1	have acquired a capacity to carry out independent scientific work and to organise, conduct and <b>lead more complex projects</b> ;	CG1	9,4	9,7	N/A
SO2	have acquired scientific, technical and social competences (abstraction ability, systems analytical thinking, capacity for teamwork, <b>ability to communicate</b> , international and intercultural experience etc.), and are therefore prepared to take on <b>leadership responsibility</b> ;	CB9 T1 T2	9,1	8,9	N/A
SO3	can combine and <b>independently</b> apply specialised knowledge in various component disciplines, in order to organise, work on and manage complex problems;	CB7	9,4	9,9	N/A
SO4	are also capable of <b>making decisions, based on incomplete or limited information</b> and	CB8	9,6	9,5	N/A
SO5	take into account <b>ethical responsibility</b> in their decisions.	CB8	9,6	9,5	N/A
[1] See Section 2.1 „Programme Objectives and Learning Outcomes“ of the General Criteria for the Accreditation of Degree Programmes of ASIIN, as of 28.03.2014					

The following conclusions can be drawn:

- The values of the ASIIN SP2-SP5 and SO1-SO5 competences are practically higher than 9.00 and higher than those corresponding to the 1st year of the MQA (60 ECTS, two semesters). This increase indicates the contribution of the TFM to the students of the MQA acquire the necessary skills to join the work or research world.
- The values of ASIIN SP4 competition focused on the ability to do independent scientific work, which combines the specific competences E21-E26 assigned to the TFM, are 9.3 and 9.7 for the 2016-2017 courses 2015-2016, respectively. These high values show that the inclusion of a TFM of 30 ECTS, as a unique characteristic of the IQS Masters, makes our students acquire this competence at an excellent level in accordance with the tradition of IQS-SE.

## MCiEM

During the 2016-2017 academic year 6 TFM has been assigned and presented (100%):

Títol del TFM	Director TFM	Qualificació	
Modelatge de ceràmiques conductores de protó	Dr. Jordi Abella Iglesias i Dr. Sergi Colominas Fuster	9,5	Excel·lent
Aqueous suspensions of evo graphene: Fabrication method and characterization of graphene particles	Dr. Caries Colominas Guardia	9,5	Excel·lent
Fabricación de <i>scaffolds</i> mediante la técnica del <i>electrospinning</i>	Dr. Salvador Borrós Gómez	9,0	Excel·lent
Mechanically Enhanced Graphitization of Electrospun MWCNT-Polyacrylonitrile fibers and Design of a characterization system for suspended Glassy carbon fibers	Dr. Salvador Borrós Gómez Dr. Marc Madou	9,8	Mat. Honor
Sistemas electroquímicos para la separación de gases. Diseño básico de un sistema para la separación selectiva de hidrógeno	Dr. Jordi Abella Iglesias i Dr. Sergi Colominas Fuster	8,5	Notable
Estudio de la influencia de recubrimientos de carbono amorfo DLC en el torque de desapriete de tornillos de fijación de pilares dentales	Dr. Caries Colominas Guardia	9,0	Excel·lent

The next table shows the values of ASIIN SP1-SP5 and SO1-SO5 competences for the TFM competences calculated for 2014-2015, 2015-2016 and 2016-2017 academic year:

	ASIIN SSC	Intended Learning Outcomes of the Degree Programme	Mean value of competences		
Code	Specialist Competences		2016-2017	2015-2016	2014-2015
	Graduates				
SP1	have deepened their <b>knowledge</b> in core subjects, special subjects or interdisciplinary subjects;	E1, E3, E5, E7, E9, E12, E14, E17, E19, E21	8,90	8,20	N/A
SP2	have knowledge building up on a Bachelor's degree level in chemistry, which forms a basis for original and competent development and <b>implementation of ideas within a research area</b> and	CB6	9,30	8,80	N/A
SP3	have competences qualifying them <b>professionally</b> , e.g. to work as a chemist in industry or public service.	CB10, CG2, T3	9,00	9,10	N/A
	Such graduates are able to				
SP4	carry out <b>independent scientific work</b> as well as	E22, E23, E24	9,30	9,20	N/A
SP5	<b>apply their knowledge</b> and understanding, in order to <b>solve problems</b> in new and unaccustomed situations, involving broader (or multidisciplinary) issues.	E2, E4, E6, E8, E10, E11, E13, E15, E16, E18, E20, CB7	9,00	8,95	N/A
Code	Social Competences		2016-2017	2015-2016	2014-2015
	Graduates				
SO1	have acquired a capacity to carry out independent scientific work and to organise, conduct and <b>lead more complex projects</b> ;	CG1	9,30	9,20	N/A
SO2	have acquired scientific, technical and social competences (abstraction ability, systems analytical thinking, capacity for teamwork, <b>ability to communicate</b> , international and intercultural experience etc.), and are therefore prepared to take on <b>leadership responsibility</b> ;	CB9, T1, T2	8,80	8,93	N/A
SO3	can combine and <b>independently</b> apply specialised knowledge in various component disciplines, in order to organise, work on and manage complex problems;	CB7	9,20	9,30	N/A
SO4	are also capable of <b>making decisions, based on incomplete or limited information</b> and	CB8	9,30	9,30	N/A
SO5	take into account <b>ethical responsibility</b> in their decisions.	CB8	9,30	9,30	N/A

The following conclusions can be drawn:

- 1) The values of the ASIIN SP1-SP5 and SO1-SO5 competencies are higher than 8.20 in all cases exceeding 9.00 in most cases. There is also a slight increase in the results of the competitions for course 16-17 with respect to 15-16. These results confirm that the

training of the students is perfectly suitable for the accomplishment of an original research work and the capacity for a later incorporation to the industry or the accomplishment of a doctoral thesis. In this sense, one of the students initiated the doctoral thesis after finishing the TFM.

- 2) The values of ASIIN SP4 competition focused on the ability to do independent scientific work, which combines the specific competences E22-E23-E24 assigned to the TFM, are at 9.20 and 9.30 for the courses 2015-2016 and 2016-2017, respectively. These high values show that the inclusion of a TFM of 30 ECTS, as a unique characteristic of the IQS Masters, makes our students acquire this competence at an excellent level in accordance with the tradition of IQS-SE.

[See evidence 3-b, Master's Thesis]

[See evidence 2-j, IST/ISC Monitoring reports]

In the case of Master's Degrees is not common to have study stays in foreign institutions and mobility is mainly reduced to the Master's Thesis (TFM). In these cases, the presentation of the project is carried out at IQS so the students are qualified following the normal protocol. Such approach allows us to warranty the same level of quality for all the Master's students.

On-site-visit: a meaningful selection of exams/transcripts/projects and other work of students from modules and from final papers/ final projects will be ready to be presented.

In addition, these material has been included as evidences the following MCiEM courses:

- Characterization and mechanical behavior and other properties
- Nanoscience and nanotechnology
- Master's thesis

## Results of Academic Indicators

**The values of the academic indicators are appropriate for the characteristics of the degree. [AQU STD 6.3]**

The memorandums reports validated by AQU Catalunya during the Ex-ante assessment process includes the reference values that IQS-URL establish as an acceptance criteria for academics results for each Degree program.

The IST and ISC reports include the results obtained for the last academic year. The results obtained in the formers academic years are included too, in order to detect tendencies.

As mentioned above, IST and ISC reports are public on the Program website (Quality and Accreditation section).

[See evidence 3-g=2], IST/ISC Monitoring reports]

MQF, MQA and MCiEM are 90 credits degree programs and the first year of implementation was 2014-15 academic year. For that reason, in this report the academics results are shown from 2015-16 academic year.

### MQF

MQF has a duration equivalent to 90 ECTS, therefore it must be completed in two consecutive academic years. So far the studies have finished two promotions (started in 2014-2015 and 2015-2016, respectively). Of the first promotion (10 students) 100% have already defended the TFM, on the other hand, of the second promotion (15 students) a total of 12 students (80%) has defended the TFM and the remaining three are expected to do it soon. Consequently, no great difficulties are expected in getting students to complete their studies within the two planned academic years.

The academic results obtained for MQF are very satisfactory and fully agree with the reference values in MQF memorandum report (see Table C2-3).

Table C2-3. MQF Academics results			
Rates	Reference Value (Memorandum report)	15-16	16-17
Rate of performance of the degree <i>Taxa de rendiment de la titulació</i>	-	93%	94,77%
Degree's dropout rate <i>Taxa d'abandonament de la titulació</i>	10%	0%	0%
Graduation rate in t <i>Taxa de graduació en t</i>	90%	60%	100%
Rate of efficiency in t <i>Taxa d'eficiència en t</i>	90%	100%	90,83%
Average duration of the studies <i>Durada mitjana dels estudis</i>	-	2	3,73

The average duration of the studies is still high because this is a 1.5-year long Master's Degree and at the time of the preparation of this Self-Assessment Report only two editions of the Master's Degree have been completed. The students involved in the third edition are currently carrying out their TFM.

## MQA

MQA has 90 ECTS credits, so it must be completed in two consecutive academic years. Two promotions have finished their studies (started in 2014-2015 and 2015-2016, respectively). Of the first promotion (4 students) 3 students have already defended the TFM and of the second promotion (6 students) a total of 5 students have defended the TFM.

The academic results obtained for MQA are summarized in Table C2-4:

Table C2-4. MQA Academics results			
Rates	Reference Value (Memorandum report)	15-16	16-17
Rate of performance of the degree <i>Taxa de rendiment de la titulació</i>	-	86%	91%
Degree's dropout rate <i>Taxa d'abandonament de la titulació</i>	10%	0%	14,3%
Graduation rate in t <i>Taxa de graduació en t</i>	90%	50%	75%
Rate of efficiency in t <i>Taxa d'eficiència en t</i>	90%	100%	95%
Average duration of the studies <i>Durada mitjana dels estudis</i>	-	2	2,5

The dropout rate is above the expected value and the graduation rate is below the expected value. Due to the low number of students they are not considered significant and for the moment no actions are established.

## MCiEM

The academic results obtained for MCiEM are very satisfactory and fully agree with the reference values in MCiEM memorandum report (see Table C2-5). It should be noted that the number of students in this first promotions (5 + 6 students) makes the statistics unrepresentative.

Table C2-5. MCiEM Academics results			
Rates	Reference Value (Memorandum report)	15-16	16-17
Rate of performance of the degree <i>Taxa de rendiment de la titulació</i>	-	100%	100%
Degree's dropout rate <i>Taxa d'abandonament de la titulació</i>	10%	0%	0%
Graduation rate in t <i>Taxa de graduació en t</i>	90%	100%	100%
Rate of efficiency in t <i>Taxa d'eficiència en t</i>	90%	99,8%	88,2%
Average duration of the studies <i>Durada mitjana dels estudis</i>	-	2	2

The information related to **labor insertion** has been explained in Criterion 1.1 [AQU STD 6.4]. This information is included in the annual monitoring reports (IST and ISC) and published in the IQS web.

## 4. Resources

### Criterion 4.1 Staff

The composition, scientific orientation and qualification of the teaching staff team are suitable for sustaining the degree.

There are sufficient staff resources available for:

→ providing assistance and advice to students

→ administrative tasks

The research and development activities carried out by the teaching staff are in line with and support the level of academic qualification aimed at.

**The teaching staff meets the requirements of the level of qualification required by the academic qualifications of the center and have sufficient and valued experience and valued teaching, research and, if applicable, professional experience. [AQU 4.1 STD]**

The IQS-SE widely exceeds the minimum required by the Organic Law 4/2007 of April 12<sup>th</sup> and RD 420/2015 of May 29<sup>th</sup>, which indicate that at least 50% of the participating professors have to be doctors for Bachelor programs and 70% for master's degrees, 60% of which will be full-time professors.

Most IQS professors are doctors and have obtained positive evaluation by the *Agència per a la Qualitat del Sistema Universitari de Catalunya* (AQU, Agency for Quality of the University System of Catalonia).

[See evidence 4-a, Teaching staff]

Measures to improve these results are a priority in our university and IQS-SE is the Center of the URL with the highest indicators in these sections (see Table C4-1 and C4-2).

The minimum requirements for the incorporation at the IQS-SE of new professors responsible of a subject are:

- must be in possession of a doctorate degree.
- must have been positively assessed of the teaching-research by an accreditation agency or the merits enough to get it.

Consequently, the percentage of professors with a PhD in IQS-SE has grown to over 75% in all degrees, reaching 100% in some Masters. In addition, the percentage of accredited doctors far exceeds 60% reaching 90% in some degrees.

Table C4-1. Credits taught by staff according to Category (excluding TFG or TFM) (2015-16)						
Program	Credits	% Doctors	% Accredited (% Accred. PhD)	% Professors (Own)	% Associate / Aggregate Prof. (own)	% Adjunct (external) / Assistant Prof.
GETI	258	78	81 (64)	19	77	4
GQ	249	97	87 (84)	46	42	12
GEQ	252	94	88 (82)	38	49	13
GB	180	96	79 (75)	21	72	7
MEQ	96	83	90 (75)	28	55	17
MBIO	98	100	66 (66)	12	79	9
MEI	191	76	69 (52)	23	61	16
MQF	100	100	83 (83)	33	62	5
MQA	90	100	82 (82)	41	45	14
MCiEM	90	88	84 (74)	61	21	18

GETI = Bachelor Program in Industrial Engineering Technology; GQ = Bachelor Program in Chemistry; GEQ = Bachelor Program in Chemical Engineering; GB = Bachelor Program in Biotechnology; MEQ = Master's Degree in Chemical Engineering; MBIO = Master's Degree in Bioengineering; MEI = Master's Degree in Industrial Engineering; MQF = Master's Degree in Pharmaceutical Chemistry; MQA = Master's Degree in Analytical Chemistry; MCiEM = Master's Degree in Materials Science and Engineering.

The faculty members of the three Masters (MQF, MQA and MCiEM) now evaluated show indicators that are consistent with the degrees already accredited (GQ, GEQ, GETI, MBio, MEQ, MEI).

The faculty of IQS-SE has expanded in recent years due to the deployment of several degrees, mainly the Master's Degree in Industrial Engineering and the Bachelor Program in Biotechnology, and by the deployment still ongoing, of the Bachelor Program in Pharmacy jointly taught with the *Fundació Blanquerna – URL*. The new incorporations are always selected taking into account the criterion established of being doctors with an accreditation (see Table C4-2).

Table C4-2. Hours taught according to professor category (excluding TFG or TFM) (2016-17)						
Program	hours	% Doctors	% Accredited (% Accred. PhD)	% Professors (Own)	% Associate / Aggregate Prof. (own)	% Adjunct (external) / Assistant Prof.
MQF	1027.5	100	85.4 (85.4)	23	72	5
MQA	742.5	100	77.3 (77.3)	41	41	18
MCiEM	1023.8	96	88.5 (84.6)	41	48	11

MQF = Master's Degree in Pharmaceutical Chemistry; MQA = Master's Degree in Analytical Chemistry; MCiEM = Master's Degree in Materials Science and Engineering



The faculty of the MQF, MQA and MCIEM Master's Degrees is mainly formed by Chemists and Chemical Engineers with expertise in research and transfer in the specific areas of the Masters: biomedicine and pharmaceutical chemistry, analysis, materials science and biomaterials, etc. The area of expertise of new Assistant Professors allowed the incorporation of some of them to the Master's faculty: a Pharmacist for Quality and Regulatory Affairs, a Pharmacist for Pharmacology and Organic Synthesis, a Chemist with expertise in Biomaterials for Drug Delivery and Biomaterials, a Physical Chemist for Characterization of Materials, etc.

Short CVs are updated on the program degree website:

MQF: <http://www.iqs.edu/en/masters/pharmaceutical-chemistry/professors>

MQA: <http://www.iqs.edu/en/masters/master-analytical-chemistry>

MCIEM: <http://www.iqs.edu/en/masters/master-materials-science-and-engineering>

[See evidence 4-a, Teaching staff]

The results of the surveys of student satisfaction are totally favorable in all areas assessed (Planning, Development, Results and Update) for all degrees (see Table C4-3). These surveys are designed in the DOCENTIA program and are applied to all professors and all subjects in the final stage of each subject.

<b>Table C4-3. Assessment of professors according to surveyed areas by student satisfaction (Course 16-17)</b>				
Studies	Planning	Development	Results	Update
GETI	76	72	69	70
GQ-GEQ	78	74	73	74
GB	78	75	71	74
MEQ	74	75	67	71
MBIO	81	79	76	78
MEI	68	67	64	66
MQF	72	68	62	68
MQA	83	81	81	78
MCIEM	77	77	72	75

The indicators of the three Masters are quite homogeneous and even slightly higher than other IQS-SE studies, which demonstrates the satisfaction of students and that three Masters fit into the most traditional areas of expertise within IQS-SE. We described the results as fully satisfactory.

The following table summarizes the evolution of annual results of student satisfaction corresponding to courses 14-15, 15-16 and 16-17 of the three Master's Degrees involved in this Self-Assessment Report (MQF, MQA and MCIEM) (see Table C4-4).

Table C4-4. Evaluation / Student Satisfaction DOCENTIA												
	2014-2015				2015-2016				2016-2017			
	P	D	R	A	P	D	R	A	P	D	R	A
MQF	80	78	78	78	80	78	76	79	72	68	62	68
MQA	80	78	78	78	84	80	79	82	83	81	81	78
MCiEM	80	78	78	78	79	76	74	81	77	77	72	75

P = Planning; D = Development; R = Results and A = Update / Innovation

The results of the evaluation of the students of MQF, MQA and MCiEM are very satisfactory. The high dedication and expertise of teachers and improvement of the ratio students/professors usually has a positive impact on the perception of students.

We have analyzed the reduction of student satisfaction in MQF (from 78 to 62 in some dimension), we mainly attribute such deviation to the space lab. The growing number of students enrolled in the three Masters may have affected the feeling of comfort of the largest group (the MQF group). Such effect was already envisioned and, consequently, work began to build a new laboratory for the MQF (inaugurated this academic year 2017-18), as well as the rebuilding of the laboratory facilities of the other two Masters.

**The teaching staff at the center is sufficient for carrying out their functions and providing assistance and advice to students. [AQU 4.2 STD]**

The activity of IQS as university center focuses on training people. According to the centrality of students, aims for better compliance with the IQS mission are precisely: to train students for excellence in reflection, personal attention to students, to acquire a habit of assessment, educate in discernment and educate according to the tradition of IQS. Consequently, it is important that the teaching at IQS to be carried out preferably by full-time with vocation and proven teaching career. The role of part-time professors is marginal and external lecturers, mainly doctors, are selected to cover either knowledge areas not well covered at IQS or professionals that provide a relevant experience in the training of students.

Table C4-1 illustrated that external professors teach between 4-18% of the subjects depending on the degree. That is to say, almost 90% of the teaching at IQS-SE is carried out by own staff which gives a unity of criteria and style with remarkable quality standards far above the usual ones in surrounding universities. This indicator is well above the requirement of "at least 60%" of teaching carried out with own staff (RD 557/1991, RD 420/2015).

Permanent own staff guarantees the life and quality of programs. To ensure the quality of teaching, a Private University must stabilize the faculty and, consequently, a viable private university with quality must maintain a teaching load at the strip high / optimal of indicators. At IQS-SE the global ratio of students (Bachelor Programs+Master's Degrees)/Professors normally fluctuates around 13-15 students /professor well in line with the quality standards (RD 420/2015 indicates a maximum of 25 students/professor). In Master's Degrees such indicator is even better and below 10 students/professor (see Table C4-5).

<b>Table C4-5. Ratio Student / Professor (EDP)</b>									
Program	#Professors (EDP)	# Students (EDP)				Students/Professor Ratio			
		14-15	15-16	16-17	17-18	14-15	15-16	16-17	17-18
MQF	3.4375	10	15	21.5	23.5	2.91	4.36	6.25	6.84
MQA	3.125	4	6	7	15	1.28	1.92	2.24	4.8
MCiEM	3.3125	5	6	11	17	1.51	1.81	3.32	5.13

MQF = Master's Degree in Pharmaceutical Chemistry; MQA = Master's Degree in Analytical Chemistry; MCiEM = Master's Degree in Materials Science and Engineering

Table C4-6 collects weekly teaching hours during term time (27-30 weeks/academic year) exclusively taught by IQS-SE professors in all degrees of the Center (the hours of special courses like Practicum/TFG/TFM are not included). The first line includes the entire faculty of the Center, in the second the faculty with responsibilities of government at the Center or University is excluded and in the last line appear only professors who do not have any kind of teaching reduction for position or activity. As it can be seen an IQS professor teaches on average about 10h per week during term time. Planning is procured considering a limit of 12 teaching hours on average per week.

<b>Table C4-6. WEEKLY Teaching hours of own Professors (full time) 15-16</b>			
	Teaching hours WEEKLY	IQS-SE own professors	Hours/professor academic week
IQS-SE ALL	517.6	57	9.1
IQS-SE No Staff	459.6	49	9.4
IQS-SE No Reduction	440.6	44	10.0

[See evidence 4-b, Sufficiency of teaching resources]

### Visiting lecturers

As it is shown in Table E4-2 above, the full-time faculty (professors and associate professors aggregates) give 95% of teaching in the Master's Degree in Pharmaceutical Chemistry (MQF), 82% in the Master's Degree in Analytical Chemistry (MQA) and 89 % in the Master's Degree in Materials Science and Engineering (MCiEM). Consequently, the participation of external professors in any case does not exceed 20% of teaching.

Only in those subjects where the intern faculty does not cover the area of expertise required, or when the help of a professional is key for the student learning (eg, in a subject of the last courses of an Bachelor Program or Master's degree), IQS-SE hires external professionals as assistant professors with the corresponding *venia docendi*. The usual profile is mainly of doctors and professionals with a proven experience.

The Heads of the Departments along with the Coordinator of a given Master's Degree identify those specific topics or subjects in which the participation of an external expert provides benefit to teaching. The Head of the corresponding Department proposes a candidate to the Dean who finally authorizes the teaching collaboration. When participation supposes an important contribution, the Dean includes the external collaborator in the DOCENTIA survey system. In the case of punctual collaborations, the professor responsible of the subject and the Coordinator of the Master jointly evaluate the external expert with the aid of the student's opinion.

### Master Thesis (TFM) advisors

At IQS-SE there is virtually no full-time faculty exclusive devoted to a Master's Degree. All IQS-SE own professors are teaching both at Bachelor Programs and Master's Degrees according to the centrality in students and their education. In addition, most of the accredited professors are active in the corresponding research groups and are the responsible of the direction of Master Thesis (TFM).

In the three Masters included in this Self-Assessment Report, the TFM projects were directed by a Principal Investigator, that is an accredited member of an active research group (see Table C4-7) and linked to one of the two doctoral programs of IQS-SE.

Taken into account the number of *Sexenios* (six-year periods of evaluated research) positively evaluated and still alive, the IQS-SE accredited professors potentially involved in the direction of TFM accumulate 25 *Sexenios* at the MQF, 15 *Sexenios* at the MQA and 12 *Sexenios* at the MCiEM, respectively. This indicator shows the highly qualified research faculty of the Master's Degrees.

Program	#TFM	% Directors IP Doctor	% Accredited (% Dr. Accred.)	% Professors	% Associate Prof.	% Assistant Prof.	# Sexenios
MQF	15	100	100 (100)	43	23	33	25
MQA	6	100	100 (100)	83	0	17	15
MCiEM	6	100	100 (100)	83	0	17	12

MQF = Master's Degree in Pharmaceutical Chemistry; MQA = Master's Degree in Analytical Chemistry; MCiEM = Master's Degree in Materials Science and Engineering.

The TFM is usually carried out at the premises of the research group in which the student is incorporated within a research/innovation project or in the facilities of a university or research center (national or international). It is also possible, following the traditional spirit of cooperation of IQS with industry, to carry out the TFM in collaboration with a company. The corresponding Coordinator, assisted by Dean's Office, collects TFM proposals offered by IQS Departments and external research centers and partner companies and manages the allocation of the student. In the final part of the TFM the Coordinator is also responsible of the assignment of a panel specific for each student for the presentation of the work.

### **Practicum**

All Bachelor Programs of IQS-SE include a compulsory Practicum (curricular). Although none of the three Masters include a compulsory stay in industries, the interest of Master's students and the intense contact with companies from different sectors allowed us to add an extracurricular Practicum, preferably between the second and third semester. The Professional Career Services, currently dependent from the General Secretary of IQS, manages all agreements and cross-curricular assignments (Bachelor Programs) and extracurricular (Bachelor Programs and Masters).

This transversal approach allows a unity of management towards students and companies simply remarkable. When necessary, Master Coordinator and the Dean help to the head of Professional Career Services to manage special situations. 39 students (58%) out of the 67 students of courses 15-16 and 16-17 of the Master's Degrees included in this report have performed satisfactorily extracurricular practices.

### **Research and Development Activities**

As for the research, which is coordinated by the departments to which the professors belong, almost all professors of IQS-SE are integrated in Research Groups recognized by the URL. Such research groups are also recognized, in different categories, by the *Generalitat de Catalunya*. Moreover, recently all IQS-SE research groups have recognition of TECNIO-ACC1Ó because IQS TECH TRANSFER-URL has been recognized by such network (<http://techtransfer.iqs.edu/es/>).

IQS TECH TRANSFER-URL is the IQS division which includes the R+D+i activities and technology transfer of IQS-SE. IQS TECH TRANSFER-URL is an accredited TECNIO agent in the category of technology developer. TECNIO seal is awarded by the *Generalitat of Catalunya* through ACC1Ó to identify where the most innovative technology, suppliers and facilitators involved in the transfer process are present.

<http://techtransfer.iqs.edu/es/reconocimiento-grupos-de-investigacion-tecnio-1-545>

IQS considers research as an essential tool to provide an updated and innovative teaching. Consequently, IQS promotes participation in competitive research projects at regional, national or international level, and academic work and contracts with industry and public administrations. Departments promote, organize and carry out research, both individually and collectively, and in accordance with the general guidelines established in IQS. In addition, an adequate research development should allow the faculty members to achieve the merits required by the university quality system for the successive accreditations.

As mentioned above, the TFM advised by accredited professor of each Master's Degree are primarily incorporated to the research areas of the research groups. The main lines of research of the PhD Program in Chemistry and Chemical Engineering of IQS are listed in <http://www.iqs.edu/ca/doctorats/quimica-i-enginyeria-quimica/grups-i-linies-dinvestigacio>.

Table C4-9 listed main research areas that are included in PhD program classified according to the corresponding Master's Degree:

<b>Table C4-9. Main Research areas of the Master's Degrees</b>	
<b>MQF</b>	Computational chemistry, molecular modeling and QSAR
	Organic Synthesis, Combinatorial Chemistry and Pharmaceutical Chemistry
	Formulations
<b>MQA</b>	Electrochemistry and Corrosion Engineering
	Food and product safety
	Analytical techniques
	Photochemistry and biomedical applications of light
<b>MCiEM</b>	Metallic materials. Catalysis. Sensor development
	Polymers and new materials. Biomaterials
	Surface engineering

MQF = Master's Degree in Pharmaceutical Chemistry; MQA = Master's Degree in Analytical Chemistry; MCiEM = Master's Degree in Materials Science and Engineering.

Furthermore, the teaching allocation of both compulsory (core) and optional subjects is done, obviously, according to the teaching and research expertise of the professor. Consequently, the fit between the expertise of professors and subjects of each master is the key to construct the teaching staff of each program. The Dean and the Heads of Department together with the Master's coordinators always keep watching that the areas of knowledge necessary to develop all the existing programs are covered with appropriate faculty members.

From an institutional point of view, it is clear the importance of promoting the research activity of the faculty members including monetary individual incentives in the research objectives.

[See evidence 4-f, Research Activities]

### DOCENTIA program

One of the joint lines of action of our university, of importance in the design and implementation of any degree, is that referring to the assessment of teaching activity of professors. In this regard, it is noteworthy the participation of IQS in the DOCENTIA Program, a program organized and managed by ANECA-AQU, in which the whole Universitat Ramon Llull is involved. Such program is aimed to create and implement a system for teaching assessment. The participation of the URL in the DOCENTIA program allows to adapt the existing models of the different institutions to the standards and guidelines for European quality and to provide a common framework for the teaching evaluation of centers that form the URL.

From a strategic point of view, we have very positively considered the joint participation of all IQS professors (IQS-SE and IQS -SM) in the DOCENTIA program. Each year one third of the professors is evaluated with all the tools (students surveys, self-report and academic responsible report). The criteria established for the selection of professors to be evaluated are:

- To have a teaching experience of at least two years at the Universitat Ramon Llull.
- To be above the threshold of 12 credits per year of teaching assignment, which is the minimum amount proposed by AQU in the Guide for the Design and Implementation of an institutional model for assessing the teaching in public universities in Catalonia (2nd ed.)

Table C4-10 includes the results of participation in DOCENTIA calls 2014, 2015 and 2016. In the 2014 call 18 professors were involved, in 2015 they were 15 and 25 participated in 2016, distributed in different categories (junior, consolidated and senior).

<b>Table C4-10. Results achieved in DOCENTIA program in 2014, 2015 and 2016</b>															
	DOCENTIA 2014					DOCENTIA 2015					DOCENTIA 2016				
Type	P	D	R	A	Total	P	D	R	A	Total	P	D	R	A	Total
Junior (4+4+6)	92	97	96	88	94	92	84	86	90	87	86	90	78	86	86
Consolidated (8+5+7)	92	93	91	89	91	93	82	79	86	84	92	87	87	89	88
Senior (6+6+12)	92	89	88	93	90	91	83	80	84	84	93	91	87	87	90
Total (18+15+25)	92	93	91	90	92	92	83	81	86	85	91	90	85	87	88

P = Planning; D = Development; R = Results and A = Update / Innovation

Staff of the center is sufficient and has enough dedication to develop their proper roles and take care of the students for an excellent development of the Masters and DOCENTIA program is suitable for the evaluation of the faculty and student satisfaction and is a useful tool for analysis and decision making to improve the quality of the Masters.

[See evidence 4-c, DOCENTIA Program]

The systematic feedback about how satisfied are Faculty and Coordinators with the resources available comes from:

- Coordination meetings (Faculty-Master Coordinator and Master Coordinators-Dean)
- Self-Assessment report during the participation in DOCENTIA program (triennial)

Periodically, the monitoring meetings for the Coordination of the different programs analyze and identify possible problems and bottlenecks. The Coordinators of the Master's Degrees and/or the Dean take immediate actions to solve such problems and revise the implementation. Where appropriate corrective or preventive measures are included in the corresponding improvement plans (see Annex, Improvement Plan).



**Criterion 4.2 Staff development**

There are offers and support mechanisms available for teaching staff who wish to further develop their professional and teaching skills.

**The institution offers support and opportunities to improve the quality of teachers' teaching and research activity. [AQU STD 4.3]**

Departments promote the scientific and educational development of their members to prepare them to perform the above activities. The Departments coordinate research and promote the creation of knowledge, according to the IQS-D4-MSGIQ [see evidence Standard 4-b].

The Dean's office and the respective departments elaborate a program of internal training contemplating identified needs of general interest or of individual interest of a professor. For example, courses on Academic innovation, internationalization, professional and research development,... [see evidence Standard 4-b]. The identification of these training needs is done primarily through the Department meetings and subsequent meetings of the heads of department have with Dean. Moreover, the systematic set of surveys to know the degree of satisfaction of the students, can reveal some aspect to be strengthened by specific training activities.

This procedure will be reviewed in order to establish the high level of responsibility to the Human Resources Director (see Annex, Improvement Plan)

Also, in general, every year, at the beginning of September, IQS organizes a workshop for the faculty members on cross-cutting issues of interest. As an example, recent conferences have been dedicated to:

- Strategic Change of the Universities in the XXI century, 5 September 2017.
- Innovation in Educational Projects, September 7, 2016.
- Culture of the current young university students and techniques to improve their attitude, September 8, 2015
- Data Science: Applications and Future Trends, September 8, 2014
- New Technologies Applied to Higher Education, 5 September 2013.

Since one of the objectives of IQS is the constant improvement of internationalization, as is evident in obtaining international accreditations for our programs (ACCSB for IQS- SM or ABET for IQS-SE Engineering studies and the current application for the Euromaster label), improving the skills of our faculty in other languages, mainly English, is a general purpose.

Consequently, since July 2014 we have carried out annual courses to improve skills in English for teaching for all the IQS professors according to their starting level.

Each IQS faculty member has an annual budget for professional development. The IQS Managing Director encourages the attendance to courses, congresses, conferences, and workshops nationally and internationally. The activities that make up the annual training plan, monitoring and evaluation of the same is carried out in each department. The Heads of Department report these activities to the corresponding Academic Board.

The IQS Managing Director, along with the Dean, performs the evaluation and revision of the annual objectives for each professor an interview them analyzing the following aspects [see Evidence 4-c]

- The degree of achievement of specific goals, which were agreed between the Professor, Dean and Managing Director.
- The results from surveys of students for each course.

Therefore, we have a valuable tool for assessing the degree of satisfaction of professors and to gather comments and suggestions. From the analysis of the results obtained, appropriate measures to correct or improve each situation can be taken, recognize the work and achievements of Professor and agreed objectives for the following year.

Finally, as a sign of satisfaction of all students of the URL and employers about their training, we have to point out that the URL is the only Catalan university and the third in Spain (IE, Navarra, URL), which annually appears in Global Employability University Ranking, a global ranking according to universities employability. This ranking can be viewed, updated in 2016, at <https://www.timeshighereducation.com/student/best-universities/best-universities-graduate-jobs-global-university-employability-ranking> .

[See evidence 4-d, Personal Development Plan (PDP)]

[See evidence 4-e, Didactical tools]

**Criterion 4.3 Funds and equipment**

The available funds and equipment form a sound and solid basis for the degree programme including:

- guaranteed funds
- sufficient and high-quality infrastructure
- solid, binding rules for all internal and external cooperations.

IQS works with analytical accounting principles; thus, all expenditures may be analyzed on an entry-by-entry basis although all results are presented as IQS's.

In the months of May and June each year, the budget for the following year is drawn up:

- Revenue from student matriculation fees, Research and contracts and services to industry are estimated according to the information available.
- Expenditure is estimated by Department according to needs and the guidelines established, and are discussed with the Director General, the Dean and the Administration Department. Most of the fixed salaries for personnel have already been established by the "*Convenio Colectivo el IQS*".
- The general investments made by the center are controlled and authorized directly by the Director General, following discussion in the meetings of the center's Board of Directors. Priority is given to matters relating to teaching and general infrastructure.

Departments and the Dean's Office draw up the central budgets for research and training matters.

[See evidence 4-j, Process descriptions]

The linkage of IQS to the industrial and business world is born at the same time as its foundation. Since then, many IQS graduates have created their own companies or have become part of the core of technicians and managers of the industries and companies of our country. For society it is vital to know that you can count on the support and reference of a prestigious institution that is capable of responding to your concerns and needs, where you can go not only in search of good professionals but also for set up projects that make it possible for its evolution and development. For this reason, *Fundación Empresas* (<https://www.iqs.edu/es/about-iqs/foundations/fundacion-empresas>) support IQS, and for industries and companies to be part of the select group that integrates its Board of Trustees is an honor at the same time that prestige.

[See evidence 4-g, Cooperation agreements]

**The available material resources are suitable for the number of students and the characteristics of the degree. [AQU STD 5.2]**

IQS's main building (17,000 m<sup>2</sup>) is the headquarters of the IQS School of Engineering. During the 2012-13 academic year a new building (10.500m<sup>2</sup>) was inaugurated and it is mainly used to de IQS School of Management studies.

The distribution of the space include:

- Meetings and conference rooms
- Administrative offices
- Multimedia rooms
- Lecturer's offices
- Ernest Solvay Multimedia Documentation Center
- Auxiliary Services
- Classrooms
- IQS-School of Engineering research and teaching workshops and laboratories

[See evidence 4-h, Equipment and facilities]

The description of the specific facilities of each master is included in the corresponding IST. It should be noted that in the three MQA masters have been carried out improvement actions related to the remodeling of laboratories (see Annex, Improvement Plan).

[See evidence 2-j, IST MQF-MQA-MCiEM]

IQS-SE has implemented processes to ensure the revision and maintenance of the resources and services.

The responsible for each service manage the activities and resources needed to provide the planned service. The various users provide the identification of needs.

The **Maintenance Department** has a Responsible and personnel at his charge to realize the preventive maintenance tasks and the corrective maintenance interventions identified after the notification of any incidence. In particular, the maintenance personnel assist any incident and periodically check the proper performance of the equipment within the facilities.

There is a survey to evaluate the degree of student satisfaction with the facilities. This survey provides valuable information to revise the materials and services available to the student and to detect the fields of improvement (see criterion 6).

IQS has a **Safety** Plan and has a person responsible of it. Furthermore, a first intervention team has also been appointed and trained. The facilities are properly marked and regular evacuation drills are conducted.

Specific safety rules applicable to each type of laboratory are mandatory and communicated to students.

The **Library** (IQS Ernest Solvay Multimedia Documentation Centre) which has an extensive history in the field of Chemistry including Pharmaceutical Chemistry, Analytical Chemistry and Material Science, has in recent years gradually specialized also in the sphere of Economics and Business.

With nearly 60,000 volumes and subscribed to approximately 820 specialist magazines in paper, it provides the opportunity for consultation in its rooms at 170 reading points. Control of periodicals and cataloguing is automated, and the internal computer networks enable users to consult the databases from any point in the Centre's network, as well as the Library PCs.

The library subscribe some databases specialized in chemistry, engineering and research, like: Scifinder Scholar, ISI web of knowledge or Food Science and Technology abstracts, also subscribe a lot of electronic journals from Elsevier (Chemistry), Royal Society of Chemistry, American Chemical Society and IEL (IEEE Xplore Digital Library) Additionally, the IQS students have access to the libraries of other components of Universidad Ramon Llull which provides them an extensive collection of library materials that they can loan and it is possible to know here: <http://cataleg.url.edu/> .

The students are issued an access card that they can use at the other campus libraries.

[See evidence 4-i, Services]

### Computing Resources

In recognition of the needs of its students and graduates, IQS has established the following Computing Resources:

**Classrooms** are equipped to meet contemporary needs such as computer network linkages and audio-visual projection equipment.

**Computer network connections** are available and all students are provided a laptop computer upon entrance to the university. The students use the computer extensively in library, in classrooms and for laboratory assignments.

The **software** used for instruction is: *Matlab*, *Visual Basic*, *Autocad (autodesk)*, *HYSYS (simulation and optimization)*, *CATIA (CAD/CAM/CAE, Dassault Systems)*, *Solid Works (CAD/CAM/CAE, Dassault Systems)*, *ANSYS*, *CYPE*, *Tdyn*, *PSS*, *CES Edupack* and *Anylogic*.

Other resources used:

**Internet:** All members have access to the Internet. Personnel and professors have access from their workplaces, and the alumni from various network connection spots throughout the facilities. It is also possible to log into the IQS wireless network (WIFI) from most of the spaces of the center.

**Web IQS:** IQS's website hosts all the information about IQS of public interest. The address is <http://www.iqs.edu/>

**Moodle platform:** *On-line* academic suite used to complement the in-classroom lectures, where:

- Students: have access to the courses in which they are registered.
- Professors and teachers: access to the courses that they are responsible for, and they can add and modify contents.

The tool that supports this service is installed in *hosting* mode. The address of this service is <http://iqs.moodle.com/>

**E-mail:** All members of the center, students as well as personnel (teachers and administration and services staff), have an email account at IQS network. The tool that supports this service is Microsoft *Exchange*, and in the client part *Outlook*. The email service can be checked from outside the IQS network through a webmail service. The service includes a contact list of all the user, calendar and collaborative work aids. The address of this service is <https://correu.iqs.url.edu>.

**Network printing** via self-service printers: There are three self-service printers that enable printing digital documents through network access.

**SIGMA Platform for the Academic Management:** It is an internal used application that facilitates the management of registrations and certificates, uploading of grades by the teachers, processing degrees, payment of taxes,...

Besides internal management, the platform enables consulting the academic curriculum, the registration and processing of petition to the secretary's office. The web address is <https://sgaw.iqs.url.edu/Navegacion/Inicio.html>

**GREC Platform** for the management and evaluation of the research: is a platform for the management, monitoring and evaluation of all the activities of the science and technology. In other words, a collection of information systems whose main objective is rationalize the management and plan of the science and technology, applied to public and private institutions with these kind of activities. Amongst others services it enables the digital management of the researcher's curricula, with reports and indicators. The web address is <https://grec.url.edu/>

**SDOC file server:** Is the file server where each user, or group of users, have private or shared folders to store their documents. Adequate security policies are applied to ensure the privacy of the data and documents held within. It is also the host server for some of the application available in the network.

On-site-visit: Visit of facilities relevant for the degree programme

## 5. Transparency and Documentation

**The institution publishes accurate, complete, up-to-date and accessible information on the characteristics of the degree and its operational development. [AQU STD 2.1]**

Aware that the publication of information guarantees transparency and facilitates accountability, in line with the European benchmarks for quality in higher education, IQS has made important efforts in recent years for transparency, accessibility and continuous updating of the information for the different groups involved.

The availability of information is structured in three levels:

- **Web page** (<http://www.iqs.edu/ca>): public access with information of a general nature and interest, managed by the Department of Corporate Communications and Marketing.

Related to the three Master's Degree programs evaluated:

MQF: <a href="https://www.iqs.edu/en/masters/master-pharmaceutical-chemistry">https://www.iqs.edu/en/masters/master-pharmaceutical-chemistry</a>
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MQA: <a href="https://www.iqs.edu/en/masters/master-analytical-chemistry">https://www.iqs.edu/en/masters/master-analytical-chemistry</a>
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MCiEM: <a href="https://www.iqs.edu/en/masters/master-materials-science-and-engineering">https://www.iqs.edu/en/masters/master-materials-science-and-engineering</a>
--

- **Intranet**: available to members of the IQS educational community and managed by General Secretary. It has access from the IQS Web and from the Virtual Classroom ( <https://moodle.iqs.url.edu/login/index.php> ). Contains information on academic regulations, scholarships, course planning (academic calendar, schedules, classrooms, exams), etc. The information has been updated simultaneously to the change from blackboard to Moodle ([see Annex Improvement Plan](#)).

- **Sdoc1 documentation server**: where IQS licensed software can be found and others free of charge and frequent use.

- **Sdoc2 documentation server**: access for IQS personnel, managed from the different areas of activity, with the support of the ICT department, allows the sharing of information between the different work teams and centralize the use of the documentation.

In this server there is a specific space where the different documents related to quality and the QAS are available (ex-ante assessment process reports, tracking results and accreditation of degrees, tracking and qualification reports, self-reports, results of the DOCENTIA program, etc.)

[\\sdoc2\CalidadDocencia.](#)

The information that is shared in this space facilitates the elaboration of the different reports relating to the quality of the official titles taught at IQS.

**Criterion 5.1 Module descriptions**

The module descriptions are accessible to all students and teaching staff and contain the following:

- module identification code
- person(s) responsible for each module
- teaching method(s) and work load
- credit points
- intended learning outcomes
- module content
- planned use/applicability
- admission and examination requirements
- form(s) of assessment and details explaining how the module mark is calculated
- recommended literature
- date of last amendment made

The information on the characteristics and the operational development of the MQF, MQA and MCiEM is available on the website of each programme with the following structure:

- *Objectives and Skills*
- *Career Opportunities*
- *Acceptance to Master's Degree Programs*
- *Application for Admission*
- *Curriculum*
- *Faculty*
- *Internships*
- *Exchange Programs*
- *Quality and Accreditations*

[See evidence 5-a=1-d, Study plan / Module descriptions MQF-MQA-MCiEM]

All the course syllabus are available in the curriculum section (see Figure C5-1):

MQF: <a href="https://www.iqs.edu/en/masters/pharmaceutical-chemistry/new-2014-2015-curriculum">https://www.iqs.edu/en/masters/pharmaceutical-chemistry/new-2014-2015-curriculum</a>
MQA: <a href="https://www.iqs.edu/en/masters/analytical-chemistry/curriculum">https://www.iqs.edu/en/masters/analytical-chemistry/curriculum</a>
MCiEM: <a href="https://www.iqs.edu/en/masters/materials-science-and-engineering/curriculum">https://www.iqs.edu/en/masters/materials-science-and-engineering/curriculum</a>



**The institution publishes information on academic and satisfaction results. [AQU STD 2.2]**

### ***Information about academic and satisfaction results***

The information about the indicators of the academic results and of satisfaction of the MQF, MQA and MCiEM, since their implementation, is available in the section Quality System of the website of the degree:

MQF: <a href="http://www.iqs.edu/en/masters/pharmaceutical-chemistry/quality-system">http://www.iqs.edu/en/masters/pharmaceutical-chemistry/quality-system</a>
MQA: <a href="http://www.iqs.edu/en/masters/analytical-chemistry/quality-system">http://www.iqs.edu/en/masters/analytical-chemistry/quality-system</a>
MCiEM: <a href="http://www.iqs.edu/en/masters/materials-science-and-engineering/quality-system">http://www.iqs.edu/en/masters/materials-science-and-engineering/quality-system</a>

The IQS-SE Monitoring Report (ISC) is public through the IQS Web / Quality Assurance System: <https://www.iqs.edu/en/about-iqs/quality-assurance-system> .

### ***Information about international mobility***

Information on international mobility is available through the IQS website:

<https://www.iqs.edu/en/international-students/international-relations-office>

In addition, on the website of the degrees, the Exchange programs section include the particular characteristics of each title:

The duration of MQF, MQA and MCiEM is one-and-a-half years (90 ECTS credits); for this reason, student mobility and reception occurs at two levels:

- a. Mobility program to carry out the master's thesis
- b. Mobility program to study the second semester corresponding to the optional subjects of the curriculum (specialization module and optional module)

MQF: <a href="https://www.iqs.edu/en/iqs-school-engineering/masters-science/masters-degree-pharmaceutical-chemistry/exchange-programs">https://www.iqs.edu/en/iqs-school-engineering/masters-science/masters-degree-pharmaceutical-chemistry/exchange-programs</a>
MQA: <a href="https://www.iqs.edu/en/iqs-school-engineering/masters-science/masters-degree-analytical-chemistry/exchange-programs">https://www.iqs.edu/en/iqs-school-engineering/masters-science/masters-degree-analytical-chemistry/exchange-programs</a>
MCiEM: <a href="https://www.iqs.edu/en/iqs-school-engineering/masters-science/masters-degree-materials-science-and-engineering/exchange">https://www.iqs.edu/en/iqs-school-engineering/masters-science/masters-degree-materials-science-and-engineering/exchange</a>

**Information about internship**

Information on internship is available through the IQS website:

<https://www.iqs.edu/en/services/professional-careers>

In addition, on the website of the degrees, the Internships section include the particular characteristics of each title:

The curriculum of the MQF, MQA and MCiEM do not include compulsory internships in companies. However, IQS has a service that specializes in facilitating the search for internships in companies between the second and the third semester.

MQF:	<a href="https://www.iqs.edu/en/iqs-school-engineering/masters-science/masters-degree-pharmaceutical-chemistry/internships">https://www.iqs.edu/en/iqs-school-engineering/masters-science/masters-degree-pharmaceutical-chemistry/internships</a>
MQA:	<a href="https://www.iqs.edu/en/iqs-school-engineering/masters-science/masters-degree-analytical-chemistry/internships">https://www.iqs.edu/en/iqs-school-engineering/masters-science/masters-degree-analytical-chemistry/internships</a>
MCiEM:	<a href="https://www.iqs.edu/en/iqs-school-engineering/masters-science/masters-degree-materials-science-and-engineering/internships">https://www.iqs.edu/en/iqs-school-engineering/masters-science/masters-degree-materials-science-and-engineering/internships</a>

**The institution publishes the Quality Assurance System that encompasses the degree and the results of the monitoring and accreditation of the degree. [AQU STD 2.3]**

In accordance with AQU Catalunya directives and the recommendations received from the unit of quality and academic innovation of the university (URL), the Executive Board (**Consejo de Centro**) considered appropriate to publicize on IQS website the results of ex-ante assessment process, monitoring, accreditation and other documents within the VSMA framework. Access to this information is available through the website of each degree, section *Quality and Accreditations*:

MQF:	<a href="http://www.iqs.edu/en/masters/pharmaceutical-chemistry/quality-system">http://www.iqs.edu/en/masters/pharmaceutical-chemistry/quality-system</a>
MQA:	<a href="http://www.iqs.edu/en/masters/analytical-chemistry/quality-system">http://www.iqs.edu/en/masters/analytical-chemistry/quality-system</a>
MCiEM:	<a href="http://www.iqs.edu/en/masters/materials-science-and-engineering/quality-system">http://www.iqs.edu/en/masters/materials-science-and-engineering/quality-system</a>

The full IQS Quality Assurance System Manual (*Manual del Sistema de Garantia Interna de la Qualitat*, MSGIQ) is public through the IQS website (see Figure C5-2):

<http://www.iqs.edu/en/about-iqs/quality-assurance-system>

[See evidence 6-a Quality Management System]

- Guideline 0 MSGIQ-IQS-DO (Version 02):  
General aspects of the IQS Quality Assurance System
- Guideline 1 MSGIQ-IQS-D1 (Version 02):  
Quality Policy and Quality Objectives for the academic activities
- Guideline 2 MSGIQ-IQS-D2 (Version 03):  
Quality assurance of the Degree Programs
- Guideline 3 MSGIQ-IQS-D3 (Version 02):  
Development of Degree Programs for encourage learning
- Guideline 4 MSGIQ-IQS-D4 (Version 02):  
Guarantee of the quality of academic staff, administration and services
- Guideline 5 MSGIQ-IQS-D5 (Version 02):  
Guarantee of the quality of resources materials and services
- Guideline 6 MSGIQ-IQS-D6 (Version 02):  
Collection and analysis of the results for the improvement of training programs
- Guideline 7 MSGIQ-IQS-D7 (Version 02):  
Publication of Information and subject to accountability on the training programs

**Figure C5-2. List of process guidelines of Quality Assurance Manual**

**Criterion 5.2 Diploma and Diploma Supplement**

Shortly after graduation, a diploma or degree certificate is issued together with a Diploma Supplement printed in English.

These documents provide information on the student's qualifications profile and individual performance as well as the classification of the degree programme with regard to its applicable education system.

The individual modules and the grading procedure on which the final mark is based are explained in a way which is clear for third parties. In addition to the final mark, statistical data as set forth in the ECTS User's Guide is included to allow readers to categorise the individual result/degree.

Once the student has passed all the courses and credits the program entails, besides other administrative requirements, the title is applied for from the Academic Secretary.

The Academic Secretary ensures that checks are made that each candidate for graduation meets the requirements of the curriculum for the degree and handles application to the Ramon Llull University, which then awards the official title.

For each degree programme, the following documents are shown as evidences:

- the template used for the request of the graduation certificate
- an example of the graduation certificate
- an example of transcript of records.
- List of graduation certificates emitted

[See evidence 5-d, transcripts MQF-MQA-MCiEM]

The European Diploma Supplement, according REAL DECRETO 1044/2003, de 1 de agosto, must contain the following information:

- a) Student data.
- b) Information on the degree.
- c) Information on the level of the degree.
- d) Information on the content and results obtained.
- e) Information on the function of the degree.
- f) Additional information.
- g) Certification of the supplement.
- h) Information on the national system of higher education.

[See evidence 5-d, transcripts MQF-MQA-MCiEM]

**Criterion 5.3 Relevant rules**

The rights and duties of both the higher education institution and students are clearly defined and binding (guidelines, statutes etc.). All relevant course-related information is available in the language of the degree programme and accessible for anyone involved.

**The application of the different regulations is carried out in an adequate manner and has a positive impact on the results of the degree. [AQU STD 1.5]**

IQS has academic regulations that contribute to the correct development of degrees.

The updating of the regulations is carried out with the participation of the different interest groups and approved in the corresponding management bodies (CPCC and JA).

The regulations are public for all members of the IQS educational community through the Intranet (<https://moodle.iqs.url.edu/login/index.php>). All the students (domestic and foreign students) receive this information during the welcoming reception so they know their rights and duties.

- During the 2015-16 academic year, the disciplinary regulation was revised to help to manage extraordinary situations (approved by JA 9/09/16).
- Credit recognition is included in Criterion 2.1.

In addition, the following link is active on the University website:

<http://www.url.edu/en/university-community/legislation-and-norms>

## 6. Quality Management: Quality Assessment and Development

### Criterion 6 Quality management: quality assessment and development

The programme is subject to regular internal quality assessment procedures aiming at continuous improvement. All responsibilities and mechanisms defined for the purposes of continued development are binding.

Students and other stakeholders take part in the quality assurance process. The outcomes and all measures derived are made known to anyone involved. All methods employed and data analysed are suitable for the purpose and used to continue improving the degree programme, especially with a view to identifying and resolving weaknesses. To this end, the information they provide includes:

- whether the intended learning outcomes required to obtain the degree have been achieved;
- the academic feasibility of the degree programme;
- student mobility (abroad, where applicable);
- how the qualifications profile is accepted on the labour market;
- the effect of measures in use to avoid unequal treatment at the higher education institution (if any).

The Manual of the Quality Assurance System (QAS) of IQS-SE (*Universitat Ramon Llull*) was presented to AQU for its evaluation in the AUDIT 2009 program and valued positively on April 22, 2010

The Internal Quality Assurance System Manual (MSGIQ) of the IQS School of Engineering (IQS-SE) of the *Ramon Llull* University (URL) was presented to AQU Catalunya for its evaluation in the AUDIT 2009 call and valued positively on April 22, 2010.

Subsequently, IQS School of Management formally applied to join the AUDIT program on 18/7/11 in the extension mode, adopting and updating the MSGIQ-IQS.

**The Implemented Quality Assurance System has processes that guarantee the design, approval, monitoring and accreditation of degree programmes. [AQU STD 3.1]**

The processes that guarantee the quality of the programs are included in Guideline D2 of the Quality Assurance System Manual (MSGIQ-IQS-D2\_v3). This guideline was updated in 2014 to incorporate the accreditation process of official degrees (See Criterion 1.3).

**The implemented Quality Assurance System guarantees the collection of information and the relevant results for the efficient management of the degrees, especially the academic results and the satisfaction of the interest groups. [AQU STD 3.2]**

### ***Systematic to obtain academic indicators***

The General Secretariat of IQS collects data about access/enrollment, rates and relevant academic results. The revision and definition of the indicators (VSMA Framework) have been done jointly with the other centers of the URL University. This review came about in the elaboration of a commonly used glossary. In this process, the involvement of the General Secretariat of IQS has been decisive.

These indicators are publicly accessible for each of the degree programmes in the *Quality and Accreditation section* of the website page of the degree (See Criterion 5, [AQU STD 2.2]).

### ***Instruments for collecting the satisfaction of interest groups***

In accordance with the Guideline D6 of the Quality Assurance Manual, the instruments for collecting information that allow to know the satisfaction of the different interest groups have been the following:

Recipient	Object	Frequency	Responsible	Date
Bachelor and Master Students (IQS)	Faculty evaluation (DOCENTIA)	Annual	IQS	September 2017
Bachelor Students – 1st and 4th academic year (URL)	URL election and about services satisfaction	Triennial	UQIAD-URL	July 2015
Bachelor and Master Students -Last year (IQS)	General Satisfaction with the training and services	Annual	IQS	Ongoing
Faculty (IQS)	Satisfaction with Labor climate and resources	Triennial	IQS	April 2015
Faculty (IQS)	Faculty satisfaction about DOCENTIA evaluation program	Triennial	IQS	February 2016
Bachelor and Master graduates (IQS)	Work situation and Satisfaction with IQS training	Triennial	IQS	Ongoing
Employers (IQS)	Employer satisfaction about IQS graduate	Triennial	IQS	Ongoing

[See evidence 6-e Statistical data]

- The results of the DOCENTIA program have been very satisfactory and are discussed in a transversal way within the criterion 4.1.
- From the area of Analytical and Prospective Studies of the UQIAD-URL, the studies of satisfaction of the students of first and fourth year of the degrees are systematically carried out, every three years. The last edition of the survey was conducted in the course 2014-15. The report was sent to the centers in July 2015.
- The survey "Bachelor and Master Students -Last year (IQS)" collects the satisfaction of the students of the Degree with the general services of the center when they are finishing the studies. The last edition related to IQS-SM students used sigm@ platform according to the improvement Plan.
- Faculty satisfaction on Labor Climate, Services and Facilities and equipment survey was done in February 2015 and report issued in April (three-yearly). Satisfactory results and very high participation rate.
- There is information about the satisfaction of graduates and employers and job insertion results (especially in pre-Bologna degrees). In any case, and considering the importance of this topic, it is considered advisable to review the process and establish new actions that reinforce it.

A specific commission has been created to review the content and application of the surveys. As a result of this commission, the survey of employers has been carried out that is currently validating (July / September 2017) and it is planned to apply the labor insertion survey (forecast for November 2017 implementation). This survey must complement the one carried out by AQU Catalunya (2017) ([see Annex Improvement Plan](#)).

The updated surveys and reports will be available at the latest during on-site visit.



<b><i>Continuous improvement Plan</i></b>
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**The implemented Quality Assurance System is reviewed periodically and generates an improvement plan that is used for its continuous improvement. [AQU STD 3.3]**

### ***Quality Assurance Manual Update***

As already mentioned in Criterion 5, the complete and updated manual is available through the IQS website: <http://www.iqs.edu/en/about-iqs/quality-assurance-system>

According to Guideline D0 (MSGIQ-URL-FT-D0/02 and MSGIQ-IQS-D0), the biennial report is the reference document for monitoring the implementation of the Quality Assurance System and the definition of the corresponding Improvement Plan.

In 2014, the first biennial report was carried out, in which, among other issues, the D2 Guideline was updated to introduce the accreditation process for official degrees.

The second biennial report (2017) focuses on detailing actions that allow increasing the degree of co-responsibility of the agents involved in the QA System, in order to facilitate the Quality function. In this way, it seeks to improve the efficiency of the organization minimizing the impact of the VSMA processes by integrating them into the ordinary activity of the Center. SGIQ review report is available through the IQS website:

**<http://www.iqs.edu/en/about-iqs/quality-assurance-system>**

The identified improvement actions were (see Annex Improvement Plan):

- Review of MSGIQ guidelines: The MSGIQ guidelines include procedures that are redundant once the transversal processes in the VSMA framework and the related information tools have been consolidated.
- Monitoring and evaluation of all activities carried out in a transversal manner, consolidating the training plan for PDI and PAS: The monitoring and evaluation of training activities is carried out at the Department level, without enhancing the cross-sectional assessment.
- Design and systematic application of the survey set: The process of collecting information has been consolidated internally but still shows deficiencies when the interest group to whom it is directed is external (withdrawn and employers).
- Extension of the information available on the Intranet: Accessibility to records on the training programs available at Sdoc2 is limited to some of the groups.

In July 2017, IQS communicated the interest of initiating the certification process of the Quality Assurance System Manual during the academic year 2017-18. The Vice President for Academic Policy at the URL transferred this initiative to AQU and the planning proposal is pending to be established.

### ***Improvement Plan***

The improvement actions identified are included in the Improvement Plan, which is attached as Annex to this report.

In accordance with the methodology of continuous improvement, for each identified action:

- An action plan is established with responsibilities and deadlines,
- The planned activities are carried out,
- The adequacy of the results obtained are assessed, to establish the effectiveness of the actions,
- The action is completed if the results are accepted or the plan is redefined to incorporate new actions.

The process of identifying, monitoring and evaluating the improvement actions is carried out with the participation of the different agents involved, especially during the monitoring process (IST / ISC) and the review of the QA Manual (biennial report).

The Improvement Plan include transversal actions - institution (IQS) and specific of each degree program (MQF, MQA, MCiEM).

In the different monitoring and accreditation processes, the tables of the Improvement Plan have been presented.

On the other hand, it should be noted that during the course 2016-17 the new Strategic Plan of IQS (2017-2020) has been developed, with the collaboration of the company "A Piece of Pie". In the preparation of the Plan, the different stakeholders (PDI, PAS, companies, students and alumni) participated. Once the Plan has been presented (September 2017), a person has been appointed to promote and coordinate the actions to be carried out over the next 3 years. One of the pillars of the new Strategic Plan (2017-20) is to continue with the internalization of IQS. The implementation of this Strategic Plan will identify new improvement actions to incorporate in the Improvement Plan of the Official Degree programs of IQS.

The review of the information included in every action was made in order to incorporate an observation related to the structure of the Improvement Plan made by AQU Catalunya in its evaluation of the ISC 15-16 of IQS -SE.

<b>Campo</b>	<b>Field</b>
NÚM	ACTION NUMBER
ESTÀNDARD	AQU STANDARD
MODIFICACIÓ (SÍ / NO)	MODIFICATION (YES / NO)
DIAGNÒSTIC	DIAGNOSTIC
DATA INICI	START DATE
IDENTIFICACIÓ CAUSES	IDENTIFICATION OF THE CAUSES
OBJECTIUS A ASSOLIR	OBJECTIVES TO ACHIEVE
ABAST	SCOPE
PRIORITAT	PRIORITY
ACCIONS PROPOSADES	PROPOSED ACTIONS
RESPONSABLE	RESPONSIBLE
TERMINI	LIMIT DATE
ESTAT	STATUS
DATA TANCAMENT	CLOSURE DATE

The action number corresponds to the chronology of the actions of the Improvement Plan of the official programmes of IQS-URL. This Joint Improvement Plan began in 2014 (Action No. 1: "Need to review and systematize the satisfaction survey of teachers", open in January 2014 and completed and closed in March 2015).

The Improvement Plan annexed include 5 transversal actions (IQS) and 19 specific actions (9MQF, 5MQA, 5MCiEM). These actions remains open, or have been identified or closed during the last academic year. During the on-site visit all the related information will be available.

## ANNEX: Improvement Plan

Number	Diagnostic	Start Date	Identification of the causes	Objectives to achieve	Proposed Actions	Scope	Priority	Responsible	Limit Date	Modification Yes / No	Closure Date
IQS-1 (23)	Establir noves actuacions que reforcin el procés d'enquestes.	11/2014	No s'ha implementat de forma sistemàtica el procediment establert	Disposar d'informació actualitzada i completa.	- Assignar responsabilitat i establir els recursos necessaris	IQS	<del>MEDIUM</del> ALTA	Director General	06/2018	No	
IQS-2 (53)	Introduir al repositori únic de SIGMA les fitxes d'assignatures de totes les titulacions	06/2016	Manca d'automatisme i traçabilitat.	Disposar d'informació completa i accessible	-Introducció de les fitxes d'assignatura (revisades i actualitzades) en el corresponent mòdul de SIGMA: DOA ( <i>Definició de l'oferta formativa</i> ). -Enllaçar DOA amb Web titulacions.	IQS	MEDIUM	Dean IQS-SM  Dean IQS-SE	12/2017	No	
IQS-3	The MSGIQ guidelines include procedures that are redundant once the transversal processes in the VSMA framework and the related information tools have been consolidated.	10/2017	The MSGIQ processes have not been Update according the improvements implemented	Update MSGIQ guidelines:	Review of MSGIQ guidelines:	IQS	HIGH	QA Responsibles	06/2018	No	
IQS-4	All documentation related to the VSMA framework and QA System is not accesible for all the agents involved	10/2017	The MSGIQ-D7 process has not been systematically implemented	Accessibility of the information	-link all VSMA documents via web  -Review the contents available on the intranet simultaneously to the change from blackboard to Moodle	IQS	HIGH	Dean IQS-SE  Dean IQS-SM  General Secretary	02/2018	No	

Number	Diagnostic	Start Date	Identification of the causes	Objectives to achieve	Proposed Actions	Scope	Priority	Responsible	Limit Date	Modification Yes / No	Closure Date
IQS-5	The monitoring and evaluation of training activities is carried out at the Department level, without enhancing the cross-sectional assessment	10/2017	The Scope of the Quality system has been expanded	Monitoring and evaluation of all activities carried out in a transversal manner, consolidating the training plan for PDI and PAS	Review the procedure in order to in order to establish the high level of responsibility to the Human Resources Director	IQS	HIGH	RRHH Director	02/2018	No	

Number	Diagnostic	Start Date	Identification of the causes	Objectives to achieve	Proposed Actions	Scope	Priority	Responsible	Limit Date	Modification Yes / No	Closure Date
MQF-1	Els alumnes externs a IQS sol·liciten poder realitzar pràctiques externes en indústries	12/2014	Molts alumnes del Màster externs a IQS no han fet Practicum al Grau	Establir acords amb empreses farmacèutiques per tal que acceptin alumnes del Màster entre el 2n i 3er semestre	Carta de Direcció IQS a empreses farmacèutiques catalanes i espanyoles per tal de que ofereixin places de pràctiques extra curriculars	MQF	Alta	Coordinador del Màster i Responsable de Carreres Professionals	Curs 2015-2016	No	Enviament cartes 26/02/15. S'han aconseguit pràctiques i TFM en empreses
MQF-2	Desplegament de l'assignatura optativa 80721 <i>Farmacologia per Químics</i> del Mòdul 4: Mòdul de Matèries Optatives	Curs 2016-2017	Interès dels alumnes i	Completar el desplegament del Màster	Contractació de nou professor/professora pel Departament de Química Orgànica i Farmacèutica	MQF	Alta	Coordinador del Màster, Deganat i Direcció IQS	Curs 2017-2018	No	Completat.  Contractació Dra. Ana Belén Cuenca. La assignatura es comença a impartir curs 2016-2017
MQF-3	Supressió de l'assignatura optativa:  80745 <i>Regulació en la Indústria Farmacèutica</i>	Curs 2017-2018	Incloure els continguts de Normatives i Regulació en l'assignatura obligatòria de l'àrea de qualitat degut a la massiva elecció dels alumnes	Evitar duplicitat continguts	Gestió Modificació JA IQS-SE, JG-URL i actualització informació en web i sigm@	MQF	Alta	Coordinador del Màster, Deganat i Direcció IQS	Curs 2017-2018	No	
MQF-4	Canvi del nom de l'assignatura 80705 <i>Gestió de la Qualitat pel de Gestió de la Qualitat i</i>	Curs 2017-18	Incloure els continguts de Normatives i Regulació en l'assignatura obligatòria de l'àrea de qualitat	Intensificar els continguts en Normatives i Regulació per tots els alumnes del Màster en Química	Gestió Modificació JA IQS-SE, JG-URL i actualització informació en web i sigm@.	MQF	Alta	Coordinador del Màster, Deganat i Direcció IQS	Curs 2017-2018	No	

Number	Diagnostic	Start Date	Identification of the causes	Objectives to achieve	Proposed Actions	Scope	Priority	Responsible	Limit Date	Modification Yes / No	Closure Date
	<i>Regulació en la Indústria Farmacèutica</i>		per tal que quedi reflectit en l'expedient dels alumnes	Farmacèutica, sense modificar les competències associades, ni les activitats formatives.	Canvi del professor responsable de l'assignatura obligatòria de l'àrea de qualitat						
MQF-5	Augmentar oferta optatives	Curs 2018-19	Interès dels alumnes en complements biològics	Completar el desplegament del Màster	Desplegar l'assignatura optativa <i>Avaluació de Compostos amb Activitat Biològica</i>	MQF	Alta	Coordinador del Màster, Deganat i	Curs 2018-2019	No	
MQF-6	Poca mobilitat	Curs 2017-18	Internacionalització del MQF	Augmentar mobilitat i l'impacte internacional del MQF	Intercanvi d'estudiants i/o professors de Universitats estrangeres	MQF	Alta	Coordinador del Màster i RRII	Obert	No	
MQF-7	Millorar mobilitat	06/2017	Internacionalització màsters IQS-SE	Obtenció del Chemistry Euromaster label	Acreditació conjunta amb l'acreditació AQU	MQF MQA	Alta	Coordinador del Màster, Direcció IQS i Rectorat URL	Curs 2017-18	No	
MQF-8	Donar major reconeixement als estudiants de Doctorat de l'àrea del MQF	Curs 2017-18	Internacionalització del MQF	Augmentar l'impacte internacional del MQF	Entrar a la xarxa de PhD en Medicinal Chemistry:  P Ehrlich MedChem. Euro PhD Network		Alta	Coordinador del Màster, Deganat i Direcció IQS	Curs 2017-2018	No	
MQF-9	Millora de les instal·lacions	07/2017	Disminuir l'activitat que els alumnes desenvolupen en els laboratoris del Departament QOIF	Laboratori específic de Química Farmacèutica i Farmacognòsia	Adequació Laboratoris	MQF	Alta	Coordinador del Màster, Deganat i Direcció IQS	Curs 2017-2018	No	

Number	Diagnostic	Start Date	Identification of the causes	Objectives to achieve	Proposed Actions	Scope	Priority	Responsible	Limit Date	Modification Yes / No	Closure Date
MQA-1	Els alumnes sol·liciten poder realitzar pràctiques externes en indústries	12/2014	Molts alumnes del Màster externs a IQS no han fet Practicum al Grau	Establir acords amb empreses per tal que acceptin alumnes del Màster entre el 2n i 3er semestre	Facilitar als alumnes l'accés al Servei de Carreres Professionals	MQA	Alta	Coordinador del Màster i Responsable de Carreres Professionals	Curs 2015-2016	No	16/03/2016
MQA-2	Baix nombre d'estudiants de nou ingrés.	07/2016	L'activitat de recerca en el camp de la Química Analítica s'ha d'incrementar	Atraure a futurs candidats a doctorands	Donar més visibilitat a la recerca que es realitza en l'àrea de Química Analítica	MQA	Alta	Coordinador del Màster	Curs 2016-17	No	10/07/2017
MQA-3	Baix nombre d'estudiants de nou ingrés.	07/2016	Estudiar la possible evolució del pla d'estudis	Afegir assignatures optatives	Estudiar la possible introducció d'assignatures optatives i el seu encaix en el pla d'estudis del Màster. Durant el mes de febrer de 2017 es va realitzar un estudi. Resta pendent la decisió final per part de la Direcció d'IQS	MQA	Alta	Coordinador del Màster	Curs <del>2016-17</del> 2017/18	No	
MQA-4	Millora de les instal·lacions del laboratori del Màster en Química Analítica	07/2017	Disposar d'unes instal·lacions que permetin disminuir l'activitat que els alumnes desenvolupen en els laboratoris del Departament de Química Analítica i Aplicada	Laboratori de Tècniques Instrumentals d'anàlisi equipat amb els equips d'ús més freqüent	Adequació del laboratori del Màster.  Incorporació de nous equips.	MQA	Alta	Coordinador del Màster	Curs 2017/18	No	
MQA-5	Millorar mobilitat	06/2017	Internacionalització màsters IQS-SE	Obtenció del Chemistry Euromaster label	Acreditació conjunta amb l'acreditació AQU	MQF MQA	Alta	Coordinador del Màster, Direcció IQS i Rectorat URL	Curs 2017-18	No	



Number	Diagnostic	Start Date	Identification of the causes	Objectives to achieve	Proposed Actions	Scope	Priority	Responsible	Limit Date	Modification Yes / No	Closure Date
MCIEM-1	Necessitat de vincular un nombre més representatiu de competències específiques al TFM	06/2014	Les competències específiques vinculades al TFM no són prou representatives (n=2) i estan relacionades amb el desenvolupament de projectes d'investigació (en general)	Augmentar el nombre de competències específiques del TFM per tal de que siguin representatives i facin referència a aspectes propis del màster	Identificar, entre les competències específiques del títol, les que puguin ser incloses al TFM (juny 2014)  Revisar guia TFM (juny 2015)	MCIEM	Alta	Coordinador Màster	05/2017	No	05/2017
MCIEM-2	Necessitat d'augmentar el numero d'estudiants de nou ingrés	02/2016	El nombre d'estudiants matriculats el curs 14- 15 (5) és molt inferior a les places ofertes (15)	Augmentar el nombre d'estudiants per tal d'arribar en 2-3 cursos als 15	Intensificar la promoció del màster	MCIEM	Alta	Coordinador Màster.  Degà	09/2016	No	10/2016
MCIEM-3	Necessitat de mercat de perfils mixtes Enginyeria Industrial/Materials	10/2017	Voluntat de potenciar la interdisciplinarietat i afavorir la incorporació d'alumnes al màster	Incorporar uns 5 alumnes per curs de perfil Enginyeria Industrial	Facilitar simultaneïtat d'estudis amb el Màster d'Enginyeria Industrial IQS	MCIEM	Alta	Coordinadors MCIEM i MEI.  Degà	06/2018	No	
MCIEM-4	Ús creixent de l'anglès com a llengua vehicular en màsters com a instrument d'internacionalització	10/2017	Voluntat d'internacionalització, captació d'alumnat estranger	Impartició del 80% màster en anglès el 2020	Augmentar a un ritme de dues assignatures anuals la impartició de classes en anglès	MCIEM	Alta	Coordinador Màster.  Degà	06/2010	No	

Number	Diagnostic	Start Date	Identification of the causes	Objectives to achieve	Proposed Actions	Scope	Priority	Responsible	Limit Date	Modification Yes / No	Closure Date
MCiEM-5	Millora de les instal·lacions	Febrer 2018	Unificació d'espais per a la realització de les pràctiques de laboratori i descongestió d'espais comuns amb altres màsters.	Laboratori de Pràctiques de l Màster en Ciència i Enginyeria dels Materials	Adequació laboratoris	MCiEM	Alta	Coordinador Màster. Degà i Direcció IQS	Curs 2017-18	No	

EVIDENCE	DESCRIPTION	TYPE OF EVIDENCE
<b>III. PROCESS FOR THE ELABORATION OF THE SELF-ASSESSMENT REPORT</b>		
Correspondence between ASIIN_AQU criteria		ASIIN_AQU correspondence_IQS_2017 (Excel)
<b>1. The Degree Programme: Concept, content &amp; implementation</b>		
<b>1-a</b> Updated degree verification report	<b>MQF, MQA, MCiEM</b> (Memoria de verificació)	<ul style="list-style-type: none"> <li>- MQF_Memoria (pdf)</li> <li>- Web link (MQF)</li> <li>- Web link (MQF) Quality and Acreditations</li> <li>- MQA_Memoria (pdf)</li> <li>- Web link (MQA)</li> <li>- Web link (MQA) Quality and Acreditations</li> <li>- MCiEM_Memoria (pdf)</li> <li>- Web link (MCiEM)</li> <li>- Web link (MCiEM) Quality and Acreditations</li> </ul>
<b>1-b</b> Evaluation report of the verification process	<b>MQF, MQA, MCiEM</b> (Informe de evaluació de la verificació)	<ul style="list-style-type: none"> <li>- MQF_Informe de verificació AQU (pdf)</li> <li>- MQF_Informe de verificació CU (pdf)</li> <li>- MQA_Informe de verificació AQU (pdf)</li> <li>- MQA_Informe de verificació CU (pdf)</li> <li>- MCiEM Informe de verificació AQU (pdf)</li> <li>- MCiEM Informe de verificació CU (pdf)</li> <li>- Informe avaluació ISC 2015-16</li> <li>- Informe Avaluació AQU al ISC 2015-16</li> </ul>
<b>1-c</b> Process description	Quality Assurance Manual – D2: Quality assurance of degree programs / <i>Garantía de calidad de los Programas formativos</i>	<ul style="list-style-type: none"> <li>- MSGIQ-URL-D2 (pdf)</li> <li>- MSGIQ-IQS-D2 (pdf)</li> </ul>
<b>1-d</b> Study plan / Module descriptions	<b>MQF, MQA, MCiEM</b> Study plan / Module descriptions Plan de estudios/guías docentes	<ul style="list-style-type: none"> <li>- Web link IQS</li> <li>- Web link (MQF)</li> <li>- Web link (MQA)</li> <li>- Web link (MCiEM)</li> </ul>
<b>1-e</b> Internal records	Internal records that document the participation of the different stakeholders in the Degree Program Design.	<ul style="list-style-type: none"> <li>- Oferta Formativa IQS-SE 17-18 (pdf)</li> <li>- Oferta Formativa IQS-SE 16-17 (pdf)</li> <li>- Oferta Formativa IQS-SE 15-16 (pdf)</li> <li>- Fitxa URL reverificació MQF i Fitxa URL modificació MQF (pdf)</li> <li>- Fitxa URL reverificació MQA (pdf)</li> <li>- Fitxa URL reverificació MCiEM i Fitxa URL modificació MCiEM (pdf)</li> <li>- Acta Consell de Centre 06/05/2013 (pdf)</li> <li>- Acta Junta Acadèmica 13/05/2013 (pdf)</li> </ul>
<b>1-f</b> Objectives-Module-Matrix	<b>MQF, MQA</b> Objectives-Module-Matrix (based on the Subject-Specific Criteria (SSC) template)	<ul style="list-style-type: none"> <li>- MQF_Tabla SSC (pdf)</li> <li>- MQA Tabla SSC (pdf)</li> <li>- MCiEM Tabla SSC (pdf)</li> </ul>
<b>1-g</b> Study Regulations	Spanish/Catalonia Official regulations	<ul style="list-style-type: none"> <li>-RD 1393-2007 ordenación enseñanzas universitarias oficiales</li> <li>-RD 861-210 modificación de RD 1393-2007</li> <li>-RD 1027-2011 MECES</li> <li>-AQU Modifications Guide</li> </ul>
<b>1-h</b> Results from questionnaires/evaluations	<b>MQF, MQA, MCiEM</b> Surveys / Encuestas a empleadores y egresados	<ul style="list-style-type: none"> <li>- Link 6-e Statistical data</li> </ul>
<b>1-i</b> Admission requirements	<b>MQF, MQA, MCiEM</b> Specific admission requirements	<ul style="list-style-type: none"> <li>- Web link Admission requirements</li> <li>- Web link Admission requirements</li> <li>- Web link Admission requirements</li> </ul>

EVIDENCE	DESCRIPTION	TYPE OF EVIDENCE
1-j Profiles of applicants and admitted students	<b>MQF, MQA, MCiEM</b> Information about the profiles of the applicants and the admitted students: Nombre de matriculats vs places ofertes 2014-17 datas (Perfil de ingreso)	<b>MQF</b> -Excel Oferta Places (pdf) -Excel alumnes matriculats (pdf) -Perfil ingr�s 2014-15; 2015-16 i 2016-17 (pdf) -Informaci� d'acc�s amb mitjana 2014-15; 2015-16 i 2016-17 (pdf) -Informaci� admissi� alumnes amb full matriculaci� (pdf) <b>MQA</b> -Excel Oferta Places (pdf) -Excel alumnes matriculats (pdf) -Perfil ingr�s 2014-15; 2015-16 i 2016-17 (pdf) -Informaci� d'acc�s amb mitjana 2014-15; 2015-16 i 2016-17 (pdf) -Informaci� admissi� alumnes amb full matriculaci� (pdf) <b>MCiEM</b> -Excel Oferta Places (pdf) -Excel alumnes matriculats (pdf) -Perfil ingr�s 2014-15; 2015-16 i 2016-17 (pdf) -Informaci� d'acc�s amb mitjana 2014-15; 2015-16 i 2016-17 (pdf) -Informaci� admissi� alumnes amb full matriculaci� (pdf)
1-k Institutional Coordination	�rgans de Govern IQS	-Calendari reunions �rgans de Govern 2016-17 (pdf) -Acta Consell de Centre 04/09/17 (pdf) -Acta Comissi� Permanent Consell de Centre 18/09/17 (pdf) -Acta Junta Acad�mica IQS-SE 07/09/17 (pdf) -Acta Comissi� Permanent Junta Acad�mica 13/07/17 (pdf)
	Coordinaci�n Departamentos - Reuniones con Decano - Reuniones de Departamento	-Exemple convocat�ries mensuals d'un Departament (pdf) -Inf. Dpt. Qu�mica Org�nica i Farmac�utica JA setembre 2017 (pdf) -Inf. Dpt. Qu�mica Anal�t. i Aplicada JA setembre 2017 (pdf) -Inf. Dpt. Eng. Qu�mica i Ci�ncia Materials JA setembre 2017 (pdf) -Calendari reunions amb Deganat (pdf) -Actes de Coordinadors de titulaci� + Deg� + Qualitat. Acta 07/03/17 i Acta 02/05/17 (pdf)
	<b>MQF, MQA, MCiEM</b> Reuniones de coordinaci�n del t�tulo	<b>MQF</b> -Exemple convocat�ries reunions de coordinaci� de la titulaci� (pdf) -Actes reuni� coordinaci� MQF (pdf) <b>MQA</b> -Exemple convocat�ries reunions de coordinaci� de la titulaci� (pdf) -Actes reuni� coordinaci� MQA (pdf) <b>MCiEM</b> -Exemple convocat�ries reunions de coordinaci� de la titulaci� (pdf) -Actes reuni� coordinaci� MCiEM (pdf)

EVIDENCE	DESCRIPTION	TYPE OF EVIDENCE
<b>2. The Degree Programme: Structures, Methods &amp; Implementation</b>		
<b>2-a</b> Study plan / Module descriptions	<b>MQF, MQA, MCiEM</b> Study plan / Module descriptions (see 1d) (Plan de estudios/guías docentes)	- Link 1-d Study plan / Module descriptions
<b>2-b</b> IQS Regulations	Regulations for the whole higher education institution	- Normativa Académica (Degà/CPJA) - Normativa Règim Disciplinari
<b>2-c</b> Process description	Quality Assurance Manual – D3: Development of the programs to promote learning / <i>Desarrollo de los Programas formativos para favorecer el aprendizaje</i>	- MSGIQ-URL-D3 (pdf) - MSGIQ-IQS-D3 (pdf)
<b>2-d</b> Student mobility	Outgoing mobility Procedures / Servicio de RRII	- Web link
	Results	- IIRR Report
<b>2-e</b> Practicum	Working practice Procedures	- Web link CCPP
	Internship Results	- PPCC Report - Employment promotion report
<b>2-f</b> Transfer and Recognition of credits	Transfer and Recognition of credits Procedures	- Normativa - Taula Reconeixements MCiEM-MEI
	Results	- Comissió Reconeixements octubre 2017 (pdf) - Exemple circuit complet (pdf)
<b>2-g</b> Student progression statistics	<b>MQF, MQA, MCiEM</b> Student progression statistics	<b>MQF</b> - Sample Report Statistics sigm@ (pdf) - Sample Report Statistics sigm@ 3 years (pdf) <b>MQA</b> - Sample Report Statistics sigm@ (pdf) - Sample Report Statistics sigm@ 3 years (pdf) <b>MCiEM</b> - Sample Report Statistics sigm@ (pdf) - Sample Report Statistics sigm@ 3 years (pdf)
<b>2-h</b> Assessment of Competences	<b>MQF, MQA, MCiEM</b> Assesment competències Títols	- Informe Competències MQF (pdf) - Informe Competències MQA (pdf) - Informe Competències MCiEM(pdf)
<b>2-i</b> Results from questionnaires /evaluations	<b>MQF, MQA, MCiEM</b> Relevant results from internal surveys and evaluations. Possibly statistical data about the student workload	- Model enquesta revisada Procés DOCENTIA IQS - Link a 4c (DOCENTIA surveys)
<b>2-j</b> IST/ISC Monitoring reports	<b>MQF, MQA, MCiEM</b> IST ISC Monitoring reports	<b>MQF</b> - IST 2016-17, 2015-16 i 2014-15 (pdf) <b>MQA</b> - IST 2016-17, 2015-16 i 2014-15 (pdf) <b>MCiEM</b> - IST 2016-17, 2015-16 i 2014-15 (pdf) - ISC 2015-16 (pdf)
<b>2-k</b> Advice and support	PAT Procedures Welcome information	- Enllaç al Web IQS, apartat <i>Serveis</i> , on està pública i disponible la informació sobre el procés d' <i>Informació i orientació als estudiants</i> - Pla Acció Tutorial <ul style="list-style-type: none"> <li>▪ Informació Tutories a IQS (pdf)</li> <li>▪ Model comunicació tutories al professor (pdf)</li> <li>▪ Model comunicació tutories a l'alumne (pdf)</li> <li>▪ PAT Manual SIGMA (pdf)</li> </ul>

EVIDENCE	DESCRIPTION	TYPE OF EVIDENCE
		<ul style="list-style-type: none"> <li>-Procediment preinscripció màsters (pdf)</li> <li>-Informació matrícula màsters (pdf)</li> <li>-Presentació dels Màsters IQS SE als alumnes de Grau (pdf)</li> <li>-Premsa: Benvinguda als estudiants de Màsters IQS (pdf)</li> <li>-Horaris curs 2016-17, 2015-16 i 2014-15 dels Màsters en Química Farmacèutica, Química Analítica i Ciència i Enginyeria de Materials (pdf)</li> <li>-IQS News (pdf)</li> </ul>
<b>2-I</b> Measures to avoid unequal treatment	Peculiarities with respect to the effect of possibly existing measures to avoid unequal treatment in the higher education institution	-Sindic greuges

EVIDENCE	DESCRIPTION	TYPE OF EVIDENCE
<b>3. Exams: System, Concept &amp; Organization</b>		
<b>3-a</b> Study plan / Module descriptions	<b>MQF, MQA, MCiEM</b> Study plan / Module descriptions (Plan de estudios/guías docentes)	-Link 1-d Study plan / Module descriptions
<b>3-b</b> Master's Thesis	Final paper /TFM	-Guía TFM
	<b>MQF, MQA, MCiEM</b> List of TFMs TFM Examples	<b>MQF</b> -Fitxa assignatura (pdf) -Presentació temes TFM (pdf) -Llista TFM assignats curs 2016-17 (pdf) -Qualificacions 2016-17 (pdf) -Competències 2016-17 (pdf) <b>MQA</b> -Fitxa assignatura (pdf) -Presentació temes TFM (pdf) -Llista TFM assignats curs 2016-17 (pdf) -Qualificacions 2016-17 (pdf) -Competències 2016-17 (pdf) <b>MCiEM</b> -Fitxa assignatura (pdf) -Presentació temes TFM (pdf) -Llista TFM assignats curs 2016-17 (pdf) -Qualificacions 2016-17 (pdf) -Competències 2016-17 (pdf)
<b>3-c</b> Samples of Master's Thesis	<b>MQF, MQA, MCiEM</b> TFM Examples	On-site visit
<b>3-d</b> Regulations for exams	Regulations for exams Study and examination regulations (see 1-g) (Normativa académica)	Intranet link (Moodle)
<b>3-e</b> Internal surveys	<b>MQF, MQA, MCiEM</b> Relevant results from internal surveys and evaluations with respect to exam management and the learning outcome orientation of the exams (see 4-c)	-Link a 4c (DOCENTIA surveys)
<b>3-f</b> Exam schedules	Examples of exam schedules (including the date of the exams)	-MQF Calendario exámenes 2016-17 -MQA Calendario exámenes 2016-17 -MCiEM Calendario exámenes 2016-17
<b>3-g</b> Statistical data of degrees	<b>MQF, MQA, MCiEM</b> data about the progress of studies, e.g. average grade, failure rate, amount of re-sits (see 2-j)	-Link 2-j IST/ISC Monitoring reports
<b>3-h</b> Samples of different subjects	<b>MQF, MQA, MCiEM</b> Material available to students in Moodle	On-site visit
<b>3-i</b> Samples of exams/transcripts/projects	<b>MQF, MQA, MCiEM</b> Meaningful selection of exams/transcripts/projects and other work of students from modules and from final papers	On-site visit

EVIDENCE	DESCRIPTION	TYPE OF EVIDENCE
<b>4. Resources</b>		
<b>4-a</b> Teaching staff	<b>MQF, MQA, MCiEM</b> Description of the teaching staff (e.g. CVs)	- Web link (MQF) - Web link (MQA) - Web link (MCiEM)
<b>4-b</b> Sufficiency of teaching resources	<b>MQF, MQA, MCiEM</b> Document out the daily use of the higher education institution that demonstrates the sufficient amount of teaching resources	<b>MQF</b> -Desplegament del pla d'estudis de la titulació curs 2016-17, 2015-16 i 2014-15 (pdf) <b>MQA</b> -Desplegament del pla d'estudis de la titulació curs 2016-17, 2015-16 i 2014-15 (pdf) <b>MCiEM</b> -Desplegament del pla d'estudis de la titulació curs 2016-17, 2015-16 i 2014-15 (pdf)
<b>4-c</b> DOCENTIA	<b>MQF, MQA, MCiEM</b> DOCENTIA Surveys / Encuestas titulo	<b>MQF</b> -Resum enquestes de satisfacció dels estudiants de la titulació, dins el programa DOCENTIA. Cursos 2014-15, 2015-16 i 2016-17 (pdf) -Resultats enquestes assignatures curs 2016-17 (pdf) <b>MQA</b> -Resum enquestes de satisfacció dels estudiants de la titulació, dins el programa DOCENTIA. Cursos 2014-15, 2015-16 i 2016-17 (pdf) -Resultats enquestes assignatures curs 2016-17 (pdf) <b>MCiEM</b> -Resum enquestes de satisfacció dels estudiants de la titulació, dins el programa DOCENTIA. Cursos 2014-15, 2015-16 i 2016-17 (pdf) -Resultats enquestes assignatures curs 2016-17 (pdf)
	DOCENTIA Program Convocatoria anual	-Actes Reunions OEC Docentia ▪ Acta Reunió Docentia 2016 (pdf) ▪ Acta Reunió Docentia 2015 (pdf) ▪ Acta Reunió Docentia 2014 (pdf) -Informe global Docentia ▪ Informe global Docentia 2016 (pdf) ▪ Informe global Docentia 2015 (pdf) ▪ Informe global Docentia 2014 (pdf) -Docentia Resultats ▪ Resultats Docentia 2016 (pdf) ▪ Resultats Docentia 2015 (pdf) ▪ Resultats Docentia 2014 (pdf)
	DOCENTIA 2016 Sample Individual Results	-Exemple Procés DOCENTIA IQS d'un professor de MQF, un de MQA i un de MCiEM ▪ Autoinforme del professor (pdf) ▪ Trajectòria acadèmica del professor (pdf) ▪ Resultats enquestes sobre el professor (pdf) ▪ Informe Docentia del Responsable Acadèmic sobre el professor (pdf) ▪ Informe Global individual (pdf)
<b>4-d</b> Personal Development Plan (PDP)	PDP	-Pla d'acollida: carta benvinguda PDI/PAS (pdf) - Personal Development Plan (PDP) (pdf) - Criteris per a aconseguir objectius (pdf) ▪ 2016-17 a 2014-15 (pdf) - Exemples valoració individual ▪ 3 professors (pdf)



EVIDENCE	DESCRIPTION	TYPE OF EVIDENCE
4-e Didactical tools	Description of didactical training opportunities (possibly link to the webpage) and of measures that support the teaching staff in its use	<ul style="list-style-type: none"> <li>-Plan formació continuada (Dept. QAA)</li> <li>-Quadre resum evidències aportades sobre la formació del professorat a IQS SE (pdf)</li> <li>-Activitat formativa específica               <ul style="list-style-type: none"> <li>▪ Informe formació anglès per a PDI – juliol'15 (pdf)</li> <li>▪ Formació anglès Personal (pdf)</li> </ul> </li> <li>-Programes de les jornades de professors (pdf)</li> <li>-Informes Direcció General a Junta Acadèmica               <ul style="list-style-type: none"> <li>▪ Informe Direcció JA 07.09.2017 (pdf)</li> <li>▪ Informe Direcció JA 29.05.2017 (pdf)</li> <li>▪ Informe Direcció JA 02.03.2017 (pdf)</li> <li>▪ Informe Direcció JA 01.12.2016 (pdf)</li> <li>▪ Informe Direcció JA 09.09.2016 (pdf)</li> </ul> </li> <li>-Informes Caps de Departament a Junta Acadèmica               <ul style="list-style-type: none"> <li>▪ Inf. Dpt. Bioenginyeria JA 2016-17 (pdf)</li> <li>▪ Inf. Dpt. Eng. Química i Ciència de Materials JA 2016-17 (pdf)</li> <li>▪ Inf. Dpt. Eng. Industrial JA 2016-17 (pdf)</li> <li>▪ Inf. Dpt. Química Analítica i Aplicada 2016-17 (pdf)</li> <li>▪ Inf. Dpt. Química Orgànica i Farmacèutica 2016-17 (pdf)</li> </ul> </li> <li>-Recull de les accions d'internacionalització dins del conveni subscrit entre IQS i l'Obra Social "La Caixa"               <ul style="list-style-type: none"> <li>▪ Resum accions curs 2016-17 (pdf)</li> <li>▪ Resum accions curs 2015-16 (pdf)</li> <li>▪ Resum accions curs 2014-15 (pdf)</li> </ul> </li> <li>-Programes Simposiums a IQS (pdf)</li> <li>-Programes Loyola I i II i Divendres Loyola a IQS               <ul style="list-style-type: none"> <li>▪ Jornada Loyola I i II 2016 (pdf)</li> <li>▪ Divendres Loyola a IQS (pdf)</li> </ul> </li> </ul>
4-f Research Activities	Research Groups (IQS Tech Transfer)	<ul style="list-style-type: none"> <li>-Web link Research Groups</li> <li>-Web link IQS Tech Factory</li> <li>-IQS Tech Transfer (pdf)</li> </ul>
4-g Cooperation agreements	Cooperation agreements, regulations for internal and external cooperations	-Memòria IQS curs 2015-16
4-h Equipment and facilities	Institutional video	-Institutional video
4-i Services	<p>Serveis bibliotecaris / Centres de recursos per a l'aprenentatge (universitat)</p> <p>TICs</p> <p>Instal·lacions especialitzades (laboratoris)</p> <p>Actividades de Comunicación</p> <p>Encuesta Servicios</p>	<ul style="list-style-type: none"> <li>-Enllaç al Web IQS: <i>Serveis, Biblioteca</i></li> <li>-Document específic per IQS-SE (pdf)</li> <li>-Informe de biblioteca per a la Junta Acadèmica maig 2017 (pdf)</li> <li>-Enllaç al Web URL, apartat Serveis</li> <li>-Enllaç al Web IQS, apartat <i>Serveis, Tecnologies de la Informació i Comunicacions (TIC)</i></li> <li>-Normativa Seguretat laboratoris (pdf)</li> <li>-Formulari utilitzat per a la recollida selectiva de residus (pdf)</li> <li>-Enllaç al Web IQS, apartat <i>Prensa</i>, on es troben les notícies, agenda i publicacions d'IQS</li> <li>-Informe resultats enquesta serveis a estudiants</li> </ul>
4-j Process descriptions	<p>Quality Assurance Manual – D4: Garantía calidad del personal académico</p> <p>Quality Assurance Manual – D5: Garantía de la calidad de los recursos materiales y servicios</p>	<ul style="list-style-type: none"> <li>-MSGIQ-URL-D4 (pdf)</li> <li>-MSGIQ-IQS-D4 (pdf)</li> <li>-MSGIQ-URL-D5 (pdf)</li> <li>-MSGIQ-IQS-D5 (pdf)</li> </ul>

EVIDENCE	DESCRIPTION	TYPE OF EVIDENCE
<b>5. Transparency and Documentation</b>		
<b>5-a</b> Study plan / Module descriptions	<b>MQF, MQA, MCiEM</b> Study plan / Module descriptions (Plan de estudios/guias docentes)	-Link 1-d Study plan / Module descriptions
<b>5-b</b> Academic regulations	Presentation of all relevant regulations with respect to study progress, access, graduation, exams, quality assurance etc., together with information about the level of the binding character	- Intranet link (Moodle)
<b>5-c</b> Process description	Quality Assurance Manual – D7: Publicación de la información y rendición de cuentas sobre los programas formativos	- MSGIQ-URL-D7 (pdf) - MSGIQ-IQS-D7 (pdf)
<b>5-d</b> Transcript of records and diploma samples	<b>MQF, MQA, MCiEM</b> Sample graduation certificate for each degree programme  Sample transcript of records for each degree programme	<b>MQF</b> - Plantilla sol·licitud títol (pdf) - Certificat tramitació títols (pdf) - Llistat relació títols tramitats (pdf) - Certificat academic alumne MQF (pdf) <b>MQA</b> - Plantilla sol·licitud títol (pdf) - Certificat tramitació títols (pdf) - Llistat relació títols tramitats (pdf) - Certificat academic alumne MQA (pdf) <b>MCiEM</b> - Plantilla sol·licitud títol (pdf) - Certificat tramitació títols (pdf) - Llistat relació títols tramitats (pdf) - Certificat academic alumne MCiEM (pdf)
	Diploma Supplement for each degree programme (SET)	- Web Link URL
<b>5-e</b> Public information	<b>MQF, MQA, MCiEM</b> Información para cada título disponible en la web (apartado Sistema de Calidad): Memoria, informes verificación, IST	- Web link (MQF) Quality and Accreditations - Web link (MQA) Quality and Accreditations - Web link (MCiEM) Quality and Accreditations

EVIDENCE	DESCRIPTION	TYPE OF EVIDENCE
<b>6. Quality Management: Quality Assessment and Development</b>		
<b>6-a</b> Quality Management System	Internal regulations about quality management / Manual del Sistema de Garantía Interna de la Calidad (MSGIQ)	-Enllaç al Web IQS: Acreditacions i garantia de qualitat on es troba el Manual complet del SGIQ (D0 a D7 d'IQS en pdf) -Política de qualitat (Missió IQS)
<b>6-b</b> Revision and diffusion of the Quality Management System	Revisión del SGIQ	-Informe biennal
	Plan Estratégico /Objetivos Presentació anual de DG a PDI i PAS	- Presentació anual de DG a PDI i PAS (pdf)
<b>6-c</b> Coordination between IQS-SE and URL	Coordinació processos IQS-SE / processos URL	-Informe assistència reunions UQUIAD (URL) per a la JA maig 2017 (pdf) -Actes UQUIAD URL <ul style="list-style-type: none"> <li>▪ Comissió Qualitat i Títols Oficials 05/07/2017 i 16/06/2017 (pdf)</li> <li>▪ Comissió Qualitat i Innovació AcadèmicoDocent 03/07/2017 i 06/06/2017 (pdf)</li> </ul> - Glossari d'indicadors (pdf)
<b>6-d</b> internal and external communication of quality management results	Sample information material about the quality management and its results which the higher education institution regularly uses for its internal and external communication (e.g. link to specific web pages, reports, flyer)	- Link 2-j IST/ISC Monitoring reports - Link 5-e Public information
<b>6-e</b> Statistical data	Instruments for collecting the satisfaction of interest groups	-Informe resultats enquesta URL alumnes de primer curs (2014-15) (pdf) -Informe resultats enquesta URL alumnes d'últim curs (2014-15) (pdf) -Informe resultats enquesta a alumnes sobre la satisfacció dels serveis (pdf) -Informe resultats enquesta a titulats sobre la satisfacció laboral i la satisfacció amb la formació rebuda (pdf) -Informe resultats enquesta a empleadors dels titulats recentment contractats sobre la satisfacció amb el rendiment i la formació del titulat (pdf) -Informe resultats enquesta sobre la satisfacció del professorat referent al clima laboral, els serveis i les instal·lacions i equipaments (pdf) -Informe resultats enquesta de satisfacció al professorat que ha participat durant l'últim trienni al programa DOCENTIA (pdf)
<b>6-f</b> Continuous Improvement Plan	Continuous Improvement Plan	Pla de Millora