

Integrating ECTS Credits and Diploma Supplement in Chemistry Third Cycle Studies

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Towards the European Higher Education Area

The **Bologna Process** was introduced with the scope of strengthening the competitiveness and attractiveness of European higher education, while fostering student mobility and employability through **transparency** and **recognition of qualifications**.

In this context, the **three-cycle system** has been implemented, and a series of **tools** based on the concept of learning outcomes has been developed.

These encompass **qualifications frameworks, transfer and accumulation of credits**, and the methodical **description of all competences** acquired during studies.

The **Bologna Process** is founded on regular **consultations of ministers responsible for higher education**. It also includes the **European Commission** as a full member.

The Council of Europe, the UNESCO European Centre for Higher Education and a range of stakeholder organisations – European University Association, European Association of Institutions in Higher Education, European Association for Quality Assurance, European Students Union, Education International, and BUSINESS EUROPE – are involved as consultative members.

The policy decisions taken during the ministerial conferences led in March 2010 to the establishment of a **European Higher Education Area**, in which now **forty-seven countries** participate.

Over the fifteen years under consideration, changes in policy priorities reflect developments in the emphasis laid on different action lines in the ministerial communiqués.

In 1999, just after the Bologna Declaration, implementing **Bologna degree structures** or acceding to the **Bologna Process** itself were among the main policy goals for thirteen countries. This priority was, however, much less prominent in 2008/09, when the focus had shifted to other issues, particularly **quality assurance** and the development of national qualification frameworks. Questions of **mobility, access, participation** and **funding** remain consistently important over time when looking at all signatory countries.

The general **shift in national higher education policy priorities** also indicates that countries have already begun to consider the European Higher Education Area a reality.

On Structured Third-Cycle Studies

A key consequence of the Bologna Process ministerial summit in Berlin (2003) has been the increasing tendency towards **placing third cycle studies** – the actual link between the European Higher Education Area and the European Research Area – **under institutional responsibility through structured programmes.**

In fact, according to the **TRENDS 2010** survey (European University Association) approximately two thirds of European higher education institutions have introduced structured doctoral programmes; as indicated by the **ARDE 2012** survey (European University Association), the percentage is reaching 80% in 2012.

Being both students and early-stage scientists, doctoral candidates perform individualised original research, which is deeply dependent on their relationship with the supervisor.

As stated in the **Salzburg II Recommendations** released by the European University Association in 2010, it is the practice of research that cultivates flexibility of thought, creativity and intellectual autonomy.

Complementing this fundamental aspect, the overall reform in third cycle education further introduces **training in transferable skills**, stimulates **mobility**, fosters **inter-disciplinarity**, and establishes a consistent **quality assurance policy** based on reliable indicators.

In this frame, and in order to be fully aligned with the overarching **Framework of Qualifications for the European Higher Education Area**, developed by the Bologna Follow-up Group, Directorate General on Education and Culture, European Commission, **third cycle degree programmes need to be structured and transparent, while avoiding overregulation.**

Academic institutions are urged to ensure that their programmes endorse the above-mentioned innovative patterns; while facing the needs of the **employment market**, notwithstanding that industry has not yet developed sufficient absorption capacity to harness the potential of university-based research.

Training through research builds a mind-setting appropriate for many sectors and careers. In fact, the **CAREER 2012** survey confirms that there is a remarkable coincidence among competences developed and appreciated by doctorate holders and those asked by enterprises. Nevertheless, more systematic initiatives also play a significant role in shaping the profile of doctoral candidates.

Third cycle **taught courses** are crucial for the individual professional development of doctoral candidates. According to the **TREE 2008** survey, **their content is usually specialisation-focused or research-oriented**, but may as well be general. Lesser importance is given to modules on career development and ethical issues.

Although a credit system is not always used, and assessment procedures are not often the case, these curricula ensure **transparency** and enhance **mobility**.

'Taught courses' is a generic term, which may include several types of organised initiatives, *e.g.* **frontal lectures** and **intensive workshops on core research skills and/or key competences**, encompassing a type of assessment; as well as activities performed by the student, such as **seminars** held in front of an informed audience or **tutoring sessions**, further the **authoring of publications** on proper research results.

Taught courses are best systematised in doctoral schools. It appears, however, that in European universities organised curricula constitute a priority solely in social sciences, economics or humanities, the policy for natural sciences and engineering restraining the imparted component to a support for research tasks.

As acknowledged in the **Salzburg II Recommendations**, the importance of the approach relies in the fact that actual outcome of a doctoral study is not simply the thesis, but rather the **doctorate holder**, as a person having developed a research mind-setting, along with the proficiency to combine pertinent knowledge, abilities and skills for confronting any particular situation.

Acquired during the period spend in the third cycle, these competences deal with **scientific and technical expertise in a well-defined area**, with **transferable core research skills**, and with **transferable personal and professional abilities**.

In fact, already in 2004 the relevant **Dublin Descriptor** integrated in the **Framework of Qualifications for the European Higher Education Area**, stated that:

Qualifications that signify completion of the third cycle are awarded to students who:

- ▶ Have demonstrated a **systematic understanding of a field of study and mastery of the skills and methods of research** associated with that field;
- ▶ Have demonstrated **the ability to conceive, design, implement and adapt a substantial process of research** with scholarly integrity;
- ▶ Have made a **contribution through original research** that extends the frontier of knowledge by developing a substantial body of work, some of which merits national or international refereed publication.

According to the national reports on Bologna Process implementation and to the relevant national legal regulations, **twenty-four countries in the European Higher Education Area operate with a hybrid structured/supervision-based scheme, and only thirteen have adopted a clearly structured setting.**

The taught component is awarded ECTS credits in thirty educational systems, while the totality of doctoral studies is fully expressed in credits in nine out of them, five more announcing a generalised use of ECTS credits without further law-bidden specifications.

In one instance supervision-based doctoral studies are allocated ECTS credits, and in another a structured scheme is not applying any credit system.

In parallel, **the Diploma Supplement is regularly issued in thirty countries.**

Although actual implementation might so far not always keep on with official legislation, the categorisation clearly reveals that **most Bologna Process signatory countries are moving towards the introduction of the Credit Transfer and Accumulation System in the third cycle.**

With the number of systematised third cycle studies steadily increasing, **it is urgent that both the research component and the additional taught elements are understood, compared and visualised** within mobility schemes, and towards the labour market.

The ‘Bologna tools’ necessary to this goal have to be carefully adapted, since doctoral studies are a predominantly research-oriented degree. Hence, while ‘measuring’ them, the notion of workload and learning outcomes becomes more complex and multi-faceted.

Doctoral Studies in Chemistry

Doctoral studies in chemistry or pertinent interface topics have already been the subject of a detailed approach. The **Budapest Descriptor** for the third cycle (2005), an adaptation of the relevant Dublin Descriptor setting the fundamental requisites of the qualification, reads as follows:

Third cycle degrees in chemistry are awarded to students who:

- ▶ Have demonstrated a **systematic understanding of an aspect of the science of chemistry and mastery of those skills and methods of research** associated with the topic of this research;
- ▶ Have demonstrated **the ability to conceive, design, implement and develop a substantial process of research** in chemical sciences with rigour and integrity;





- ▶ Have made a **contribution through original research** that extends the frontier of knowledge in chemical sciences by developing a substantial body of work, some of which merits national or international refereed publication;
- ▶ Have **competences which fit them for employment as professional chemists in senior positions** in chemical and related industries, or for a progression to a career in academic research.





Such graduates:

- ▶ Are capable of **critical analysis, evaluation and synthesis** of new and complex ideas;
- ▶ Can **communicate** with their peers, the larger scholarly community and with society in general about their areas of expertise;
- ▶ Can be expected to be able to **promote**, within both academic and professional contexts, **scientific and technological advancement** in a knowledge based society.

In order to address career environments in chemical sciences, doctoral candidates should develop **core research skills**, which could be systematised as follows:

- ▶ Acquaintance with the **methodology of research**.
- ▶ Acquaintance with **interdisciplinary research environments**.
- ▶ Ability to use **scientific instrumentation** and interpret results.
- ▶ Ability to develop **original, independent and critical thinking**.
- ▶ Ability to formulate questions, to give structure to a scientific argument, to find **adequate methods and theories for tackling problems**.

Complementing scientific proficiency, **transferable key competences** include the ability to effectively advance in an industrial or government environment, to act self-dependently, and to have leadership capabilities.

The doctoral candidate would therefore be responsive to training in the following issues:

- ▶ **The planning process** – objectives, strategies, policies, decision making.
- ▶ **The structure and process of organising** – authority vs. self-contained work, organisational flexibility, adaptability to novel situations, time management.
- ▶ **The management of human resources** – qualifications vs. requirements, orienting new team members, team building, organising individual tasks and duties, formulating motivation strategies.





- ▶ **The management of information** – analysis, evaluation, synthesis and selection of complex concepts and facts.
- ▶ **The communication process** – communication skills (including presentation techniques, language skills, writing of project proposals and reports), tutoring and training skills, ability for knowledge transfer and interaction with peers, audiences & panels, the scholarly community & society in general under multilingual conditions.
- ▶ **The development process** – internal and external training, handling innovation.
- ▶ **The management of financial issues** – facing budgetary and market-oriented questions, dealing with budgetary restrictions.
- ▶ **The process of controlling and assessing quality.**
- ▶ **Social responsibility** and ethics.

To a certain level, core research skills and key competences are acquired while working on the thesis. Nonetheless, quite often their attainment would require further formal or non-formal teaching, mostly in the form of **specialised workshops** or relevant **course modules**.

Based on analogous considerations, third-cycle studies in chemical sciences are gradually developing into structured programmes. A quality label of largely trans-national impact, the **Chemistry Doctorate Eurolabel[®]**, guarantees transparency towards the research community and the labour market, while enhancing the development of structured doctoral programmes, by offering quality assurance at the level of the European Higher Education Area.

As already cited, thirteen countries have adopted a fully structured scheme for all disciplines. In addition, **the establishment of doctoral schools is greatly enhanced in the thirty educational systems allocating ECTS credits to taught elements**, and especially in those fully applying the credit system in the third cycle.

According to the **PhDChem 2011** survey, in chemical sciences or pertinent interface topics **courses and workshops are commonly allocated the equivalent of 60 ECTS credits**, the margin fluctuating from 15 (in three-year cycles) to 120 (in four-year cycles) credits.

The introduction of adequate reliable 'Bologna tools' in the third cycle is further reinforcing **the contribution of higher education to the process of innovation** by creating a frame permitting universities, eager to exchange systematically knowledge and skills for the benefit and through the **mobility** of early-stage researchers, to have full intelligibility in methodology and tools.

In this context, and with the intention of proceeding to a rational and transparent implementation of structured doctoral programmes in chemical sciences, **the use of 'Bologna tools' should be considered in a critical, comprehensive und unbiased way.**

Integrating 'Bologna Tools' into Doctoral Programmes in Chemical Sciences

At the structural level, **the Bologna process has led to greater convergence in the architecture of national higher education systems.** The overall broadness of the guidelines expressed in communiqués, declarations and related texts, however, allows countries and institutions to **maintain specific characteristics** for most programmes.

In order to help **the development of comparable and understandable degrees and systems,** a number of pre-existing 'tools' were introduced in the Bologna Process to foster transparency and mutual recognition. These aim to make education systems and programmes more transparent and render them comprehensible for all.

A. European Credit Transfer and Accumulation System

The **European Credit Transfer and Accumulation System** endows teaching and learning across Europe with a transparency apparatus, and eases recognition of all studies. ECTS credits are allocated to entire qualifications or study programmes, as well as to their educational components.

They are based on the workload students need to invest in order to achieve and express expected learning outcomes. In this context, learning outcomes are verifiable statements of what learners who have obtained a particular qualification, or completed a programme or its components, are expected to know, understand and be able to do.

Positive assessment of learning outcomes is the pre-condition for the award of credits to a learner, since it makes it possible to ascertain whether he has acquired the desired knowledge, understanding and competences.

In the **Salzburg II Recommendations**, the **European University Association** states that:

Applying the credit system developed for cohorts of students in the first and second cycles is not a necessary precondition for establishing successful doctoral programmes. Some universities consider credits useful for the taught components of doctoral education, especially in cross-institutional (joint) doctoral programmes.

Credits, however, do not make sense when measuring the research component or its associated dissemination outputs. Applied wrongly, rigid credit requirements can be detrimental to the development of independent research professionals.

Nevertheless, a number of countries in the European Higher Education Area have already adopted a line **allocating ECTS credits to all components of the third cycle**, and there is a tendency towards increasing relevant numbers.

In addition, **a credit system would greatly add to the unambiguous clarity of joint programmes or to any type of mobility** between structured doctoral programmes.

In view of the student-centred approach, which lies in the essence of the Bologna Process, and of the overall tendency to allocate ECTS credits at doctoral level – **it should be considered to which degree and within which frame credit allocation is advantageous for doctoral candidates in chemical sciences within the European Higher Education Area.**

In this context, and while taught educational components are easily 'measurable', it must be emphasised that **the research part forms one integral non-modularised learning activity**. Actually, **in the third cycle the workload is not connected to time, but reflects the total effort done by the candidate in order to complete his research.**

If administrative requirements proceed to the allocation of ECTS credits per semester or year, attention should be called to the fact that this splitting up does not quantify progress in research, and **fragmentary credit award is nominal and provisional.**

B. Diploma Supplement

The Diploma Supplement identifies the level and function of a qualification, as well as the results attained. It reports on the nature, level, context, content and status of the studies pursued and successfully completed. Thus, it contains a precise description of the academic career and the competences acquired by the holders during the study period; and an objective description of their achievements and competences.

In combination with the credential itself, **the Supplement should provide sufficient information to enable making a judgement about the qualification and whether it is appropriate for the purpose it is meant to,** for example employment or the right to practise a profession.

The Diploma Supplement gives details of each of the individual elements or parts of the qualification and their weighting. To this aim, actual marks and/or grades obtained in each major component of the qualification are listed.

These should also cover all examinations and assessed components or fields of study offered in examination, including any dissertation or thesis, with an indication if the latter were defended or not. Where possible, **the total student effort required should be described in terms of credits**, and the credit system should be described.

European countries should translate the workload required for the qualification into the European Credit Transfer and Accumulation System.

In the third cycle, the **Diploma Supplement** becomes essential whenever the candidate has followed structured doctoral studies involving a **taught component** or encompassing **mobility initiatives**. In an analogous setting, it is a most advantageous way for systematising the results of **joint degrees**.

Under all these circumstances the learning outcomes outreach by far the thesis and the subsequent **expertise in a well-defined scientific area**, since they include a varying number of transferable competences, namely **core research skills** along with **personal and professional proficiency**.

As a matter of fact, the question arises the more often among stakeholders as to what type and level of knowledge, skills and mind-settings an early-stage researcher has acquired during his doctoral years. **A Diploma Supplement completed by a portfolio would definitely increase transparency and foster employability.**

Taking into account that the **Diploma Supplement is a flexible, non-prescriptive tool, capable of adaptation to local needs**, it should be considered to which degree and under what circumstances it is beneficial for young scientists, who are about to be awarded the doctoral degree.

In this context, and in order to facilitate Diploma Supplement issuance even the case of non-structured doctoral studies in chemical sciences, **explanatory remarks to the Diploma Supplement model** are proposed in form of **footnotes**, based on the above-cited concepts and on a large number of actual examples.

With the explanatory remarks taken into careful consideration, the overall structure of the Diploma Supplement may be effectively used for third cycle studies in chemical sciences.

Diploma Supplement for Third Cycle Studies in Chemical Sciences

I. OUTLINE STRUCTURE FOR THE DIPLOMA SUPPLEMENT

This Diploma Supplement model was developed by the European Commission, Council of Europe and UNESCO/CEPES. The purpose of the supplement is to provide sufficient independent data to improve the international 'transparency' and fair academic and professional recognition of qualifications (diplomas, degrees, certificates etc.). It is designed to provide a description of the nature, level, context, content and status of the studies that were pursued and successfully completed by the individual named on the original qualification to which this supplement is appended. It should be free from any value judgements, equivalence statements or suggestions about recognition. Information in all eight sections should be provided. Where information is not provided, an explanation should give the reason why.

II. DIPLOMA SUPPLEMENT EXPLANATORY NOTES

(updated version adopted by the Lisbon Recognition Convention Committee, June 2007, Bucharest)

Since the Diploma Supplement was adopted in 1999, it has been adopted as part of national legislation in many countries. Since 1999, there have been significant developments within higher education, notably as concerns the development of joint degrees and of transnational or cross-border higher education provision. Other significant developments include the development of external quality assurance and/or accreditation and the introduction, within the European Higher Education Area, of national and overarching qualifications frameworks. Within the Bologna Process, Ministers have committed to issuing the Diploma Supplement automatically, free of charge and in a widely spoken European language by 2005. The Diploma Supplement has also been incorporated in the Europass established by the European Parliament and the Council of Ministers in 2004. Where qualifications are issued as joint degrees, double or multiple degrees or under transnational/borderless education arrangements, this should be noted in the Diploma Supplement, in particular in points 2.1, 2.3, 2.4, 4.1, 4.3 6.1 and 8. Consortia offering joint degrees would be well advised to provide information packages on their degrees. Where relevant, these may be included with the Diploma Supplement.

1. INFORMATION IDENTIFYING THE HOLDER OF THE QUALIFICATION

1.1 Family name(s):

1.2 Given name(s):

1.3 Date of birth (day/month/year):

1.4 Student identification number or code (if available):

1. INFORMATION IDENTIFYING THE HOLDER OF THE QUALIFICATION

1.1 Provide the full family or surname(s).

1.2 Include all given/first names.

1.3 Indicate day, month and year of birth.

1.4 This should identify the individual as a student enrolled on the particular programme which is covered by the Diploma Supplement, e.g. through the student's personal code in the institution's database. A national or State personal identification number could be included for those countries that have such systems of identification, in accordance with national legislation.

2 INFORMATION IDENTIFYING THE QUALIFICATION

2.1 Name of qualification and (if applicable) title conferred (in original language):

2.2 Main field(s) of study for the qualification:

2.3 Name and status of awarding institution (in original language):

2.4 Name and status of institution (if different from 2.3) administering studies (in original language):

2.5 Language(s) of instruction/examination:

2 INFORMATION IDENTIFYING THE QUALIFICATION

2.1 Give the full name of the qualification in the original language(s) as it is styled in the original qualification e.g. Kandidat nauk, Maîtrise, Diplom, etc. The original name of the qualifications may be transliterated into the alphabet or writing system used for the language in which the Diploma Supplement is issued (e.g. Latin characters for Supplements issued in English or Cyrillic for Supplements issued in Russian). Indicate if the award confers any nationally accepted title on the holder and what this title is e.g. Doctor, Ingénieur etc, and, if appropriate, a specific professional competence, such as “teacher of French”. Indicate if the title is protected in law. If the qualification is a joint degree, this should be indicated.

2.2 Show only the major field(s) of study (disciplines) that define the main subject area(s) for the qualification e.g. Politics and History, Human Resource Management, Business Administration, Molecular Biology etc.

2.3 Indicate the name of the institution awarding the qualification in the original language. Where a degree is issued jointly by two or more institutions, the names of the institutions issuing the joint degree should be indicated, with indication of the institution at which the major part of the qualification has been obtained, if applicable.

The status of the institution refers above all to whether it has successfully undergone a quality assurance and/or accreditation exercise or procedure, and this should be clearly indicated. It may also be relevant to give the profile of the institution. If the provider is transnational or borderless, this should be clearly noted.

As a (fictitious) example, this information could be given in the following form:

“[Name of the institution] is a private non-university institution which has undergone external quality assurance by agency X in [name of the country] in 2003 with satisfactory results”.

2.4 This refers to the institution which is responsible for the delivery of the programme. This is often, but not always the same as the institution awarding the qualification (see 2.3 above). Cases are known in which a higher education institution entitles another institution to deliver its programmes and issue its qualifications through a “franchise” or some type of “validation”, “affiliation”, etc. In some cases that other institution may be located in a different country. If this is the case it should be indicated here. If there is a difference between the awarding institution and the institution delivering the programme leading to the qualification indicate the status of both, see 2.3 above.

2.5 Indicate the language(s) by which the qualification was delivered and examined.

3 INFORMATION ON THE LEVEL OF THE QUALIFICATION

3.1 Level of qualification:

3 INFORMATION ON THE LEVEL OF THE QUALIFICATION

3.1 Give the precise level of qualification and its place in the specific national educational structure of awards (explained and cross-referenced to the information in section eight). For countries that have established a national qualifications framework, give the place of the qualification within the national qualifications framework. The framework itself should be described in point 8. Include any relevant information on “level indicators” that are nationally devised and recognised and which relate to the qualification.

3.2 Official length of programme:*

3.2 Explain the official duration or workload of the programme in weeks or years and the actual workload including information on any major sub-components i.e. practical training. Preferably, the workload should be expressed in terms of total student effort required. This consists of the normal designated time on the programme including taught classes and private study, examinations etc. Where possible, the effort should be described in terms of credit, and the credit system should be described. European countries should translate the workload required for the qualification into the European Credit Transfer and Accumulation System (ECTS).

3.3 Access requirement(s):

3.3 List or explain the nature and length or workload of access qualification(s) or periods of study required for access to the programme described by this Diploma Supplement e.g. Matura (for access to a first degree programme) or Bachelor Degree (for access to a second degree programme). This is particularly important when intermediate studies are a prerequisite to the named qualification.

* The official length may be strictly defined, or else presented ‘in principle’ or ‘approximately’. If possible, **ECTS credits should clarify the workload**. If no official duration is foreseen, this should be mentioned. In such case, the total student effort required may be described on the basis of the relevant ECTS credits. If national regulations do not foresee/allow credit allocation to the total or the research part of doctoral studies, the issue is referred to item **4.2 (PROGRAMME REQUIREMENTS)**.

4 INFORMATION ON THE CONTENTS AND RESULTS GAINED

4.1 Mode of study:

4.2 Programme requirements:*

4 INFORMATION ON THE CONTENTS AND RESULTS GAINED

4.1 The mode of study refers to how the programme was undertaken e.g. full-time, part-time, intermittent/sandwich, e-learning, distance, including placements etc.

4.2 Where available, provide details of the learning outcomes, knowledge, skills, competencies and stated aims and objectives associated with the qualification. This information, which relates to outcomes rather than procedures of learning, will increasingly be the key basis on which qualifications are assessed. If applicable, provide details of the regulations covering the minimum requirements to secure the qualification, e.g. any compulsory components or compulsory practical elements, whether all elements have to be passed simultaneously, any thesis/dissertation regulations etc. Include details of any particular features that help define the qualification, especially information on the requirements for successfully passing it.

* National and institutional/departmental rules for acquiring the doctoral degree, including regulation on thesis defence and course assessment, should be shortly summarised. The relevant **Budapest Descriptor** for third cycle studies in chemistry and the **core research skills and/or key competences** should be taken into account.

Information included in item **4.3 (PROGRAMME DETAILS)** is usually simply referring to the Transcript of Studies, or is proceeding to a general depiction of programme details. **In the third cycle, the Transcript of Studies is not always fully presenting all study/research outcomes, while overall descriptions lack the necessary individualisation.**

It is recommended that item **4.3 (PROGRAMME DETAILS)** takes the form of a short **Portfolio**, including the **thesis** (title, abstract, reference, supervising body, board of examiners), any **publications** (title, abstract, reference), the **taught/organised component** (transcript of courses and relevant marks/credits), any **mobility** forming official part of the programme (frame, outcomes), and a list of possible **tutoring activities** forming official part of the programme.

4.3 Programme details: * (e.g. modules or units studied), and the individual grades/marks/credits obtained: (if this information is available on an official transcript this should be used here)

4.3 Give details of each of the individual elements or parts of the qualification and their weighting. For institutions that issue transcripts of studies, it will be sufficient to include the transcripts.

List the actual marks and/or grades obtained in each major component of the qualification. Entries should be as complete as possible and in accordance with what is normally recorded at the institution concerned. Cover all examinations and assessed components and/or fields of study offered in examination, including any dissertation or thesis. Indicate if the latter were defended or not. All this information is often available in the form of a transcript (a useful format for transcripts has been developed for the European Credit Transfer and Accumulation System [ECTS], see point 3.2 above). Many credit-based systems employ detailed transcripts that can be integrated into the wider framework of the Diploma Supplement. If information on the credit allocation between course components and units is available it should be included. If the qualification is a joint degree, indicate what parts of the qualification have been earned at which institution.

* A **portfolio** is prepared including the following information:

- ▶ **Thesis** (title, abstract, reference, supervising body, board of examiners).
- ▶ **Publications** (title, abstract, reference).
- ▶ **Taught/organised component** (transcript of courses and relevant marks/credits).
- ▶ **Mobility** forming official part of the programme (frame, outcomes).
- ▶ **Tutoring activities** forming official part of the programme (list).

4.4 Grading scheme and, if available, grade distribution guidance: *

4.4 Provide information on the grading scheme and pass marks relating to the qualification e.g. marks are out of a possible 100% and the minimum pass mark is 40%. Tremendous variations in grading practices exist within and between different national higher education institutions and countries. A mark of 70% in some academic cultures is highly regarded whilst in other countries it is regarded as average or poor. Information on the use and distribution of grades relating to the qualification in question should be included. If more than one grading scheme is used, e.g. in the case of joint degrees, information should be provided on all schemes used for the qualification in question.

* If national regulations do not foresee/allow credit allocation to doctoral studies, this should be mentioned. If credit allocation is foreseen, the Diploma Supplement has to provide **statistical data in accordance with the ECTS User's Guide** to assist in interpreting the individual degree.

4.5 Overall classification of the qualification (in original language):*

4.5 If appropriate, indicate the overall classification for the final qualification, i.e. First Class Honours Degree, Summa Cum Laude, Merit, Avec Distinction etc.

* If national regulations do not foresee/allow overall classification for the final qualification, this should be mentioned.

5 INFORMATION ON THE FUNCTION OF THE QUALIFICATION

5.1 Access to further study:

5.2 Professional status (if applicable):

5 INFORMATION ON THE FUNCTION OF THE QUALIFICATION

5.1 Indicate if within the country of origin, the qualification normally provides access to further academic and/or professional study, especially leading to any specific qualifications, or levels of study e.g. access to Doctoral studies in Hungary. If this is the case, specify the grades or standards that have to be obtained to allow progression. Indicate if the qualification is a terminal (end) award or part of a hierarchy of awards.

5.2 Give details of any rights to practise, or professional status accorded to the holders of the qualification, in accordance with national legislation. What specific access, if any, does the qualification give in terms of employment or professional practice and indicate which competent authority allows this. Indicate if the qualification gives access to a 'regulated profession'.

Item **6.1** is practically never considered as an opportunity to complete the holder's profile. However, chemical scientists who are about to be awarded the doctoral degree can often give proof of **mobility, tutoring activities, participation in intensive programmes** or **award of distinctions** relevant to the qualification, which do not form official part of the study programme.

Once these activities are attested by the supervising body and/or the board of examiners, it is recommended that they should be referred to under item **6.1 (ADDITIONAL INFORMATION)**.

6 ADDITIONAL INFORMATION

6.1 Additional information:*

6 ADDITIONAL INFORMATION

6.1 Add any additional information not included above but relevant to the purposes of assessing the nature, level and usage of the qualification e.g. whether the qualification involved a period of study/training in another institution/company/country or, include further relevant details about the higher education institution where the qualification was taken. If the qualification is a joint or double/multiple degree, or if it was earned under a transnational or borderless education arrangement, this should be noted here.

*** Mobility, tutoring activities, participation in intensive programmes or award of distinctions relevant to the qualification, but not forming official part of the study programme, should be included in a **portfolio, whose contents are attested by the supervising body and/or the board of examiners.****

6.2 Further information sources:

6.2 Indicate any further useful information sources and references where more details on the qualification could be sought e.g. the department in the issuing institution; a national information centre; the European Union National Academic Recognition Information Centres (NARIC); the Council of Europe/UNESCO European National Information Centre on Academic Recognition and Mobility (ENIC) and relevant national sources.

7 CERTIFICATION OF THE SUPPLEMENT

7.1 Date:

7.1 The date the Diploma Supplement was issued. This would not necessarily be the same date the qualification was awarded.

7.2 Signature:

7.2 The name and signature of the official certifying the Diploma Supplement.

7.3 Capacity:

7.3 The official post of the certifying individual.

7.4 Official stamp or seal:

7.4 The official stamp or seal of the institution that provides authentication of the Diploma Supplement.