



The European Chemistry Thematic Network Association (ECTNA)

rue de Stassart, 119, Brussels, BE 1050, BELGIUM

c/o CPE Lyon Relations Internationales 43, boulevard du 11 Novembre 1918 P.O. Box 2077 F-69616 Villeurbanne cedex FRANCE

ECTNA Label Committee



Good Practice Advice for evaluation of the Applications for the Chemistry EUROBACHELOR[®] Label

November 2010

Who can apply for the Chemistry EUROBACHELOR[®] Label?

The Chemistry EUROBACHELOR[®] Label can be applied for by

- both, institutions which are introducing new Bachelor programmes in the chemical sciences;
- and institutions which have already introduced new Bachelor programmes in chemical sciences.
- Consortia should ask for special conditions.

The term "Bachelor programme" refers to the complete degree programme.

The Chemistry EUROBACHELOR[®] Label is awarded for a period of five academic years and can be renewed for further periods of five years. Applications for renewal will require a much less detailed self-evaluation report.

Procedure

The first step in the application process is to advise the Executive Secretary (by e-mail) that an application will be submitted.

The next step is the preparation of a self-evaluation report according to the guidelines outlined below.

Before preparing the self-evaluation report, please read the EUROBACHELOR document in its latest form, as published in the web under www.eurobachelor.eu, and keep it to hand, as questions in the Guidelines will refer directly to points in the proposal.

This report is to be submitted to the Chair of the ECTNA Label Committee with all the additional documents preferably as one hard-copy with a CD/DVD which contains all documents in MS/Word or PDF format [see below]:

Prof. Pavel Drasar, ECTNA LC Chair
c/o ICT Prague
Technicka 5
166 28 Praha 6
Czech Republic
Pavel.Drasar@vscht.cz

A synopsis is to be submitted as a signed paper version; PDF version need not to be signed. The synopsis consists of the following elements:

1.	Name of the Faculty, Department etc. responsible for the Bachelor study programme
2.	Name (<i>in the original language and in English</i>) of the qualification which is the subject of this application (e.g. BSc in Chemistry)
3.	Name and full address (with fax and e-mail) of the person responsible for producing the self-evaluation report
4.	Number of ECTS credits which the degree programme carries
5.	The academic year in which this degree programme was or will be introduced
6.	Entry qualifications for this degree programme.
7.	Statement of Applicant: <i>I (full name, position as head of the institution/department/faculty responsible for the study programme) hereby agree that this (institution/department/faculty) will, if awarded the EUROBACHELOR label, recognise Bachelor degrees in chemistry awarded by other institutions holding the EUROBACHELOR label as providing automatic right of access (but not of admission) to appropriate chemistry Master programmes offered by this (institution/department/faculty).</i>
The statement must be signed, stamped and dated by the person making the declaration.	

The complete report must be submitted as an **electronic version in the form of a Windows-compatible CD (as one single file, e.g. PDF)**.

Text should be prepared using a Microsoft Word-compatible programme with a 12-point font and a line separation of not more than 1.5.

The cover page of the electronic version of the self-evaluation report should contain the following information:

1.	Name and full address of the University
2.	Name of the Faculty, Department etc. responsible for the Bachelor study programme
3.	Name (<i>in the original language and in English</i>) of the qualification which is the subject of this application (e.g. BSc in Chemistry)
4.	Name and full address (with fax and e-mail) of the person responsible for producing the self-evaluation report
5.	Number of ECTS credits which the degree programme carries
6.	The academic year in which this degree programme was or will be introduced
7.	Entry qualifications for this degree programme.

The receipt of the self-assessment report will be acknowledged.

The report will be considered by the ECTNA Label Committee, which will appoint a Rapporteur and two further experts to deal with the application.

Further correspondence will take place between the Rapporteur responsible and the person responsible for preparing the self-evaluation report.

The self-evaluation report should include the following documentation:

1.b	Outline of the study programme ¹ , using Table 1, arranged according to semesters/trimesters of study, containing the designations of the modules/course units ² which the student is expected to study in that semester/trimester. These should be designated as compulsory, semi-optional or elective. Explanatory footnotes should be provided giving information on the range and manner of choice for the student in selecting the semi-optional or elective modules.
2.b	Outline of the Outcomes, using Table 2, 3 and 4

¹ The term "study programme" refers to the complete degree programme

² The term "course unit" refers to defined subunits of the study programme. These may be for example an individual lecture course or a lecture course in combination with a practical course. The term "module" is usually, though not always, used to refer to subunits involving a combination of two or more individual units.

- | | |
|-----|--|
| 3.b | Module/course unit descriptions according to the ECTS specification (see Appendix 1). Each description should not exceed one page in length. |
| 4.b | Numbers of the academic staff (teaching staff) involved in delivering the study programme of student enrolment |
| 5.b | Official institutional regulations defining the study programme which is the subject of the application. |
| 6.b | An example of the Diploma Supplement issued by the institution. |

All documentation must be in English, which is the working language of the ECTN Association. A translation of official regulations is however not required.

The receipt of the self-assessment report will be acknowledged.

The report will be considered by the ECTNA Label Committee, which will appoint a Rapporteur and two further experts to deal with the application.

Further correspondence will take place between the Rapporteur responsible and the person responsible for preparing the self-evaluation report.

Please keep all answers brief and do not exceed the requested page lengths!
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Structure of the Self-Evaluation Report

The self-evaluation report is structured according to the following points in the EUROBACHELOR[®] proposal:

- I. Outcomes Subject Knowledge & Programme structure (Table 1)
- II. Outcomes: Subject Knowledge (Table 2)
- III. Outcomes: Abilities and Skills
 1. Chemistry-related cognitive abilities and competences (Table 3)
 2. Chemistry-related practical skills (Table 3)
 3. Generic competences (Table 4)
- IV. Content
- V. Distribution of Credits (Table 5)
- VI. ECTS and Student Workload
- VII. Modules (or Course Units) and Mobility
- VIII. Methods of Teaching and Learning
- IX. Assessment Procedures and Performance Criteria
- X. Grading
- XI. The Diploma Supplement
- XII. Quality Assurance

Judging the Quality of EUROBACHELOR Programmes: “Fitness for Purpose”

According to the “Budapest Descriptor”, first cycle degree programmes should fulfil the criteria which follow:

First cycle degrees in chemistry³ are awarded to students who have shown themselves by appropriate assessment to:

1. *have a good grounding in the core areas of chemistry: inorganic, organic, physical, biological and analytical chemistry; and in addition the necessary background in mathematics and physics;*
2. *have basic knowledge in several other more specialised areas of chemistry⁴;*

³ A **EUROBACHELOR** qualification

⁴ Such as computational chemistry, materials chemistry, macromolecular chemistry, radiochemistry

3. *have built up practical skills in chemistry during laboratory courses, at least in inorganic, organic and physical chemistry, in which they have worked individually or in groups as appropriate to the area;*
4. *have developed generic skills in the context of chemistry which are applicable in many other contexts;*
5. *have attained a standard of knowledge and competence which will give them access to second cycle course units or degree programmes.*

Such graduates will:

6. *have the ability to gather and interpret relevant scientific data and make judgements that include reflection on relevant scientific and ethical issues;*
7. *have the ability to communicate information, ideas, problems and solutions to informed audiences;*
8. *have competences which fit them for entry-level graduate employment in the general workplace, including the chemical industry;*
9. *have developed those learning skills that are necessary for them to undertake further study with a sufficient degree of autonomy.*

The Descriptor describes the outcomes of a Bachelor programme in the chemical sciences, and applicants are asked to provide a statement which defines the aims and the profile of the programme. **Such a statement will describe the elements of the programme with reference to the above descriptor and show how the terms of the Descriptor are met. It will also describe the skills and competences which the graduate will have at the end of the programme.**

This statement defines the **purpose** of the programme, and the accreditation process will then be designed to find out whether the programme as set out in detail in the application is **fit for the purpose** for which it is designed. In evaluating the statement, the ECTNA Label Committee and its experts will look for evidence of how your programme achieves the outcomes as defined by the Budapest Descriptor.

Please do not use more than one page. You may wish to use the statement prepared for inclusion in the Diploma Supplement (section 4.2).

I. Outcomes: Subject Knowledge and Programme Structure

The **EUROBACHELOR**[®] proposal contains a list of outcomes which, it is suggested, all study programmes should cover. It can be expected that these will be referred to in the module/course unit descriptions.

Table 1, which is divided according to years 1-3 (corresponding to 180-credit programmes), will provide an outline of the structure of the study programme. If the programme which you are submitting for consideration has more than 180 credits, please add a further page.

Please also complete Tables 2 and 3. Table 2 indicates which modules/course units will deal with the main aspects of chemistry as listed in the **EUROBACHELOR**[®] document. *You may find it easier to do this if your modules/course units are given numbers (e.g. 1/1 etc., 2/1 etc., 3/1 etc.) in Table 1 which can be referred to in Table 2.*

Table 3 deals with generic competences and provides information on how they are dealt with in the **EUROBACHELOR**[®] degree course.

Generally, the Tables must show the bachelor course has required length, credit value(s), and composition.

Compulsory chemistry modules will deal with the main subdisciplines:

Analytical chemistry; Inorganic chemistry, Organic chemistry, Physical chemistry, Biological chemistry.

Depending on the staff structure of the department, semioptional modules will deal with sub-disciplines such as:

Computational chemistry, Chemical technology, Macromolecular chemistry, Biochemistry

Non-chemical modules will deal with mathematics, physics and biology. It can be expected that there will be compulsory mathematics and physics modules.

Modules corresponding to a total of at least 150 credits (including the Bachelor Thesis) should deal with chemistry, physics, biology or mathematics.

50 % of the credits (i.e. 90 out of 180) will cover the following areas: Analytical chemistry, Inorganic chemistry, Organic chemistry, Physical chemistry, Biological chemistry, Physics, Mathematics.

TABLE 1

a) YEAR 1

Module/course unit title	Credits (ECTS)	Compulsory (C), Semi-optional (S) or Elective (E)	Total Teaching Hours			Pre-requisites
			Lecture	Practical	Other	

NATURE AND EXTENT OF OTHER LEARNING ACTIVITIES, e.g. guided study, team exercises:

c) YEAR 2:

Module title	Credits (ECTS)	Compulsory (C), Semi-optional (S) or Elective (E)	Total Teaching Hours			Pre-requisites
			Lecture	Practical	Other	

NATURE AND EXTENT OF OTHER LEARNING ACTIVITIES, e.g. guided study, team exercises:

d) YEAR 3:

Module/course unit title	Credits (ECTS)	Compulsory (C), Semi-optional (S) or Elective (E)	Total Teaching Hours			Pre-requisites
			Lecture	Practical	Other	

NATURE AND EXTENT OF OTHER LEARNING ACTIVITIES, e.g. guided study, team exercises:

II. Outcomes: Subject Knowledge

TABLE 2

Aspect of chemistry	Treated in module/course unit
a) Major aspects of chemical terminology, nomenclature, conventions and units	
b) The major types of chemical reaction and the main characteristics associated with them	
c) The principles and procedures used in chemical analysis and the characterisation of chemical compounds	
d) The principal techniques of structural investigations, including spectroscopy	
e) The characteristics of the different states of matter and the theories used to describe them.	
f) The principles of thermodynamics and their applications to chemistry	
g) The principles of quantum mechanics and their application to the description of the structure and properties of atoms and molecules	
h) The kinetics of chemical change, including catalysis; the mechanistic interpretation of chemical reactions	
i) The characteristic properties of elements and their compounds, including group relationships and trends within the Periodic Table	
j) The structural features of chemical elements and their compounds, including stereochemistry	
k) The properties of aliphatic, aromatic, heterocyclic and organometallic compounds	
l) The nature and behaviour of functional groups in organic molecules	
m) Major synthetic pathways in organic chemistry, involving functional group interconversions and carbon-carbon and carbon-heteroatom bond formation	
n) The relation between bulk properties and the properties of individual atoms and molecules, including macromolecules (both natural and man-made), polymers and other related materials	
o) The structure and reactivity of important classes of biomolecules and the chemistry of important biological processes.	

III. Outcomes: Abilities and Skills:

1. Chemistry-related cognitive abilities and competences

2. Chemistry-related practical skills

3. Generic competences

TABLE 3.

1. Chemistry-related cognitive abilities and competences	Treated in module/course unit
1.1 Ability to demonstrate knowledge and understanding of essential facts, concepts, principles and theories relating to the subject areas identified above.	
1.2 Ability to apply such knowledge and understanding to the solution of qualitative and quantitative problems of a familiar nature.	
1.3 Competences in the evaluation, interpretation and synthesis of chemical information and data.	
1.4 Ability to recognise and implement good measurement science and practice.	
1.5 Competences in presenting scientific material and arguments in writing and orally, to an informed audience.	
1.6 Computational and data-processing skills, relating to chemical information and data.	
2. Chemistry-related practical skills	
2.1 Skills in the safe handling of chemical materials, taking into account their physical and chemical properties, including any specific hazards associated with their use	
2.2 Skills required for the conduct of standard laboratory procedures involved and use of instrumentation in synthetic and analytical work, in relation to both organic and inorganic systems	
2.3 Skills in the monitoring, by observation and measurement, of chemical properties, events or changes, and the systematic and reliable recording and documentation thereof.	
2.4 Ability to interpret data derived from laboratory observations and measurements in terms of their significance and relate them to appropriate theory	
2.5 Ability to conduct risk assessments concerning the use of chemical substances and laboratory procedures	

3. Chemistry-related practical skills.

Please:

- state how many credits out of the total number of credits for the programme are allocated to practical courses
- give brief details of the type of instruction given in the practical courses (e.g. group instruction, hands-on laboratory work).

The answers to this point should not exceed one page of text!

Practical courses with good instructions and feedback are essential part of the programme.

TABLE 4. - Generic competences

Please give brief details of how (for example in which course units/modules) these generic competences are dealt within the degree programme.

3.1 The capacity to apply knowledge in practice, in particular problem-solving competences, relating to both qualitative and quantitative information.

Site visit team shall evaluate balanced distribution and outcome value.

3.2 Numeracy and calculation skills, including such aspects as error analysis, order-of-magnitude estimations, and correct use of units.

Site visit team shall evaluate balanced distribution and outcome value.

3.3 Information-management competences, in relation to primary and secondary information sources, including information retrieval through on-line computer searches.

Site visit team shall evaluate balanced distribution and outcome value.

3.4 Ability to analyse material and synthesise concepts.

Site visit team shall evaluate balanced distribution and outcome value.

3.5 The capacity to adapt to new situations and to make decisions.

Site visit team shall evaluate balanced distribution and outcome value.

3.6 Information-technology skills such as word-processing and spreadsheet use, data-logging and storage, subject-related use of the Internet.

Site visit team shall evaluate balanced distribution and outcome value.

3.7 Skills in planning and time management.

Site visit team shall evaluate balanced distribution and outcome value.

3.8 Interpersonal skills, relating to the ability to interact with other people and to engage in team-working.

Site visit team shall evaluate balanced distribution and outcome value.

3.9 Communication competences, covering both written and oral communication, in one of the major European languages (English, German, Italian, French, Spanish) as well as in the language of the home country.

Both language communication competences must be present !!

3.10 Study competences needed for continuing professional development. These will include in particular the ability to work autonomously.

Way to future professional development shall be paved.

3.11 Ethical commitment

Ethical issues must be present.

IV - Content

Recommended: modular form (5 or 6 ECTS credits).

Modules corresponding to a total of at least 150 credits (including the Bachelor Thesis) should deal with chemistry, physics, biology or mathematics.

Compulsory modules & Bachelor Thesis⁵ (15 ECTS credits); semi-optional (where a student is required to select one or more modules from a limited range), and elective (where the student may choose one or modules from a normally much wider range).

Compulsory chemistry modules will deal with the main sub-disciplines (Analytical chemistry; Inorganic chemistry; Organic chemistry, Physical chemistry and Biological chemistry⁶).

Semi-optional modules will deal with sub-disciplines (Computational chemistry, Chemical technology, Macromolecular chemistry, Biochemistry or Biophysics).

Non-chemical modules will deal with: mathematics, physics and biology (**compulsory mathematics and physics modules**).

⁵ This can be defined as a research project, the results of which will be presented in the form of a written report. This report may be subject to examination and will in any case be graded.

⁶ Biological chemistry comprises: structure and reactivity of biomolecules and the chemistry of biological processes

Practical courses: organised as separate modules or as integrated modules.

Please supply the following information:

- 4.1 The total number of modules/assessed course units which the study programme comprises.
- 4.2 The minimum and maximum size of modules (if applicable).
- 4.3 A list of elective modules/course units typically taken by students (title and number of credits only).
- 4.4 The total number of credits carried by modules/course units (including the Bachelor Thesis if applicable) which deal with chemistry, physics, biology or mathematics.

Please keep your answer as brief as possible!

It is recommended that the module should correspond at least 5 credits, however, if the study programme in the country follows different pattern, the issue shall be explained and is negotiable.

V. Distribution of Credits

CORE recommended minimum = 90 ECTS credits (Analytical chemistry, Inorganic chemistry, Organic chemistry, Physical chemistry, Biological chemistry, Physics & Mathematics)

Semi-optional modules = recommended **at least three** additional chemistry-related sub-disciplines (i.e. biology, theoretical/computational chemistry, chemical technology, macromolecular chemistry) (**Each of these should correspond to at least 5 ECTS credits = min 15 ECTS credits**).

Language modules = proficiency in a second major European language (these being English, German, Italian, French and Spanish) as well as the language of instruction of the degree course.

The following information is required:

- 5.1 The number of credits forming the "core" as defined in the **EUROBACHELOR[®]** document.
- 5.2 How many additional sub-disciplines⁷ are available and how many credits are allocated to each.
- 5.3 How many of these sub-disciplines the student is required to study.
- 5.4 Which language modules/course units are on offer and whether these are compulsory, semi-optional or elective
- 5.5 To which extent the institution offers individually-negotiated study programmes.

TABLE. 5

CORE - compulsory	ECTS credits
Analytical chemistry	
Inorganic chemistry	
Organic chemistry	
Physical chemistry	
Biological chemistry	
Physics	
Mathematics	
Sub-Total (min required 90 ECTS credits)	
Semi-optional – additional chemistry related subdisciplines (biology, theoretical/computational chemistry, chemical technology, macromolecular chemistry)	
1. (min required 5 ECTS credits)	
2. (min required 5 ECTS credits)	
3. (min required 5 ECTS credits)	
Sub-Total (min required 15 ECTS credits)	

⁷ Subdisciplines of chemistry are: organic, inorganic, physical, analytical, biological, theoretical, computational etc

Other Chemistry related modules	
1.	
2.	
3.	
4.	
5.	
6.	
Sub-Total (min required 30 ECTS credits)	
Bachelor Thesis(min required 15 ECTS credits)	
Sub-Total (min required 150 ECTS credits)	
Language modul/es	
TOTAL (min required 180 ECTS credits)	

The above defined credit distribution is a Golden Rule; deviations may not be a killing factor, but must be carried in a way the main spirit of the Golden Rule is not lost.

VI. ECTS and Student Workload

The European average for the total full-time student workload per academic year = 1500 hours, spread over 36-40 weeks per year.

Please provide the following information:

- 6.1 How many weeks per year do you expect your students to spend on academic study?
- 6.2 How many hours per week is the average student expected to spend on academic study?
- 6.3 How student workload was *estimated* when assigning credits to modules/course units.
- 6.4 Mechanisms used for continuous student feedback on *actual* workload and for the use of this feedback to correct the structure of programmes where necessary

The answers to this point should not exceed half a page of text!
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Label Committee is not the ECTS body. We require the use and understanding of ECTS principles together with periodical and regular evaluation of the feedback from the students.

VII. Modules/Course Units and Mobility

Mobility within different European universities must be an important feature of **EUROBACHELOR** qualifications. ***Wherever possible only first-year modules should be treated as "non-transferable"***. Modules or course units should be fully described according to the ECTS "Key Features". Thus the information listed in the Appendix is necessary for each course unit:

Please provide the following information:

- 7.1 Is mobility possible in:
 - 7.1.1 Year 1?
 - 7.1.2 Year 2?
 - 7.1.3 Year 3?
- 7.2 Are certain modules/course units (apart from those assigned to year 1) defined as being "non-transferable", i.e. they must be taken at the home institution? If so, please list these modules/course units.

Mobility is a key feature of the labelled courses, however, again, if the situation for any reason does not allow it, it shall not be a killing factor on the condition it is duly explained.

VIII. Methods of Teaching and Learning

Please briefly describe your methods of teaching and learning. You may wish to include information on the following points:

- 8.1 Tutorial system
- 8.2 Teaching in small groups:
 - 8.2.1 in practical courses
 - 8.2.2 in theoretical courses
- 8.3 Problem-solving classes
- 8.4 Multimedia teaching techniques
- 8.5 Teamwork as an element of teaching.
- 8.6 Bachelor Thesis (Dissertation, project)
- 8.7 Industrial placement which carries credits.
- 8.8 Committees with student participation

Answers to this point should not exceed one page of text!

Every university shall have their own procedures, however, it is sought that all the aspects from Article VIII are present in the education system and used in teaching. Committees where students are expected to express their feelings, attitudes, expectations and complaints, however, shall be implemented in the system of every university that applies for a label. Here the Site Visit Team shall ask directly the students in a discussion where no staff members are present (also, it is also good opportunity to judge the “foreign” language competence and mobility practice).

Bachelor Thesis is absolute must. In some cases it may be connected to a final exam (defence) that may have credit value, even if this is not generally expected.

IX. Assessment procedures and performance criteria

Please summarise the assessment procedure involved in this study programme. You may wish to include information on the following points:

- 9.1 Is assessment carried out with examinations at the end of each term or semester?
- 9.2 Are "comprehensive examinations" at the end of the study programme used? If so, how are they organised and how many credits do they carry (individually and in total)
- 9.3 Is more use made of written or of oral examinations?
- 9.4 For written examinations: is the marking checked by a second examiner?
- 9.5 For oral examinations: how many persons are involved as examiners or note-takers in each examination?
- 9.6 What is the minimum and maximum time allowed for written examinations?
- 9.7 Are examination papers marked anonymously?
- 9.8 Is the student provided with feedback, for example in the form of "model answers"?
- 9.9 Is there an examination board which approves written examinations or is this the individual responsibility of the teacher(s) concerned?

The answers to this point should not exceed one page of text!

Here, the general overview must be sound, somewhere the oral exams are common, somewhere not. Some aspects of quality assurance are expected (either anonymous grading, several examiners, or out of the school examiner, etc. ...).

X. Grading

Please supply the following information:

- 10.1 Is the ECTS ranking system used for a) mobile and b) home students?
10.2 How are ECTS ranks assigned (on a statistical basis) and by whom⁸?

ECTS grading scheme (A, B, ... F) shall be used. If not (for given reason) the comparison table must be added to every Diploma Supplement. It should be noted that in some concrete situations the requirement of ECTS on Gaussian distribution of grades makes no sense (LC are not ECTS body!).

XI. The Diploma Supplement

Please supply the following information:

- 11.1 Is each graduate issued with a European Diploma Supplement (http://europa.eu.int/comm/education/policies/rec_qual/recognition/diploma/en.html) automatically? If not, describe the method of issue.
11.2 In which language(s) is the Diploma Supplement issued?

Diploma Supplement in English is absolute MUST.

XII. Quality Assurance

The chemistry **EUROBACHELOR**[®] designation is a quality label and involves the formation of one of the first trans-national European quality assurance networks in the emerging European Higher Education Area. Quality assurance (or quality enhancement) is an external and also an internal matter, and thus the applicant is asked to describe briefly the internal quality assurance procedures of the faculty/department and (if these have a direct impact on the faculty/department) of the institution.

The answer to this point should not exceed half a page of text!

QA plays a role, however, it depends very much on every country legislation and common practice.

XIII. Employability

Please provide brief answers to the following questions:

- 13.1 What forms of employment do students with this qualification to enter?
13.2 What percentage of your graduates continue their studies to a Master or doctoral programme in your or other institutions?

Please supply evidence if available.

The answer to this point should not exceed half a page of text!

Information on employability is interesting for ECTN but depends very much on every country legislation and common practice.

Statement of Applicant

As stated in the **EUROBACHELOR**[®] description:

*" A primary aim of the **EUROBACHELOR**[®] qualification is to provide a degree which will be recognised by other European institutions as being of a standard which will provide automatic right of access (though not right of admission, which is the prerogative of the receiving institution) to chemistry Master programmes."*

⁸ General secretary, Departmental Coordinator, etc.

The self-evaluation report must therefore end with the following declaration:

*I (full name, position as head of the institution/department/faculty responsible for the study programme) hereby agree that this (institution/department/faculty) will, if awarded the **EUROBACHELOR**[®] label, recognise Bachelor degrees in chemistry awarded by other institutions holding the **EUROBACHELOR**[®] label as providing automatic right of access (but not of admission) to chemistry Master programmes offered by this (institution/department/faculty).*

It must also be signed, stamped and dated by the person making the declaration.

Appendix I

ECTS Specification for the Module/Course Unit Descriptions (from the "Key Features")

- Course title
- Course code
- Type of course
- Level of course
- Year of study
- Semester/trimester
- Number of credits allocated (workload based)
- Name of lecturer
- Objective of the course (expected learning outcomes and competences to be acquired)
- Prerequisites
- Course contents
- Recommended reading
- Teaching methods
- Assessment methods
- Language of instruction

The description of the above shall give overall picture of the course/programme organisation and quality.



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ECTN-A Label Committee

www.chemistry-eurolabels.eu

*Guidelines for Applications for the Chemistry **EUROBACHELOR**[®] Label*

May 2012: replaces all earlier versions

Procedure

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The first step in the application process is the preparation of a self-evaluation report according to the guidelines outlined below. This report is to be submitted to the Chairman of the ECTN Association Label Committee at the following address:

Prof. Dr. Pavel Drasar
Chairman, ECTN Association Label Committee
c/o Ustav 342, ICT Prague
Technicka 5
CZ-166 28 Praha 6
Pavel.Drasar@vscht.cz / contact@chemistry-eurolabels.eu

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The cover page of the self-evaluation report should contain the following information:

1. Name and full address of the University
2. Name of the Faculty, Department etc. responsible for the Bachelor study programme
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4. Name and full address (with fax and e-mail) of the person responsible for producing the self-evaluation report
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6. Number of credits (including the Bachelor Thesis) derived from modules/course units in chemistry, physics, biology or mathematics. The Eurobachelor[®] requires at least 150.
7. The academic year in which this degree programme was or will be introduced.
8. Entry qualifications for this degree programme.

The self-evaluation report should be accompanied by the following documentation:

- Outline of the study programme¹, using Table 1, arranged according to semesters/trimesters of study, containing the designations of the modules/course units which the student is expected to study in that semester/trimester². These should be designated as compulsory, semi-optional or elective. Explanatory footnotes should be provided giving information on the range and manner of choice for the student in selecting the semi-optional or elective modules.
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- Numbers of the academic staff (teaching staff) involved in delivering the study programme of student enrolment.
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- An example of the Diploma Supplement issued by the institution.

Please submit **one** hardcopy of the self-evaluation report, including the documentation listed above, to the address given above and in addition an **electronic version in the form of a Windows-compatible CD (preferably as one single file, e.g. PDF)**. Text should be prepared using a Microsoft Word-compatible programme with a 12-point font and a line separation of not more than 1.5.

All documentation must be in English, which is the working language of the ECTN Association. A translation of official regulations is however not required.

The receipt of the self-assessment report will be acknowledged.

Please keep all answers brief and do not exceed the requested page lengths!

¹ The term "study programme" refers to the complete degree programme

² The term "course unit" refers to defined subunits of the study programme. These may be for example an individual lecture course or a lecture course in combination with a practical course. The term "module" is usually, though not always, used to refer to subunits involving a combination of two or more individual units.

Structure of the Self-Evaluation Report

The self-evaluation report is structured according to the following points in the Eurobachelor[®] paper:

1. Outcomes: Subject Knowledge
2. Outcomes: Abilities and Skills
3. Content
4. Distribution of Credits
5. ECTS and Student Workload
6. Modules (or Course Units) and Mobility
7. Methods of Teaching and Learning
8. Assessment Procedures and Performance Criteria
9. Grading
10. The Diploma Supplement
11. Quality Assurance

1. Outcomes: Subject Knowledge

The Eurobachelor[®] paper contains a list of outcomes which, it is suggested, all study programmes should cover. It can be expected that these will be referred to in the module/course unit descriptions.

Table 1, which is divided according to years 1-3 (corresponding to 180-credit programmes), will provide an outline of the structure of the study programme. If the programme which you are submitting for consideration has more than 180 credits, please add a further page.

Please also complete Tables 2 and 3. Table 2 indicates which modules/course units will deal with the main aspects of chemistry as listed in the Eurobachelor[®] document. *You may find it easier to do this if your modules/course units are given numbers (e.g. 1/1 etc., 2/1 etc., 3/1 etc.) in Table 1 which can be referred to in Table 2.*

Table 3 deals with generic competences and provides information on how they are dealt with in the Eurobachelor[®] degree course.

TABLE 1

a) YEAR 1

Module/course unit title	Credits (ECTS)	Compulsory (C), Semi-optional (S) or Elective (E)	Total Teaching Hours			Pre-requisites
			Lecture	Practical	Other	

NATURE AND EXTENT OF OTHER LEARNING ACTIVITIES, e.g. guided study, team exercises:

b) YEAR 2

Module title	Credits (ECTS)	Compulsory (C), Semi-optional (S) or Elective (E)	Total Teaching Hours			Pre-requisites
			Lecture	Practical	Other	

NATURE AND EXTENT OF OTHER LEARNING ACTIVITIES, e.g. guided study, team exercises:

c) YEAR 3

Module/course unit title	Credits (ECTS)	Compulsory (C), Semi-optional (S) or Elective (E)	Total Teaching Hours			Pre-requisites
			Lecture	Practical	Other	

NATURE AND EXTENT OF OTHER LEARNING ACTIVITIES, e.g. guided study, team exercises:

TABLE 2**Outcomes: Subject Knowledge**

Aspect of chemistry	Treated in module / course unit
a) Major aspects of chemical terminology, nomenclature, conventions and units	
b) The major types of chemical reaction and the main characteristics associated with them	
c) The principles and procedures used in chemical analysis and the characterisation of chemical compounds	
d) The principal techniques of structural investigations, including spectroscopy	
e) The characteristics of the different states of matter and the theories used to describe them.	
f) The principles of thermodynamics and their applications to chemistry	
g) The principles of quantum mechanics and their application to the description of the structure and properties of atoms and molecules	
h) The kinetics of chemical change, including catalysis; the mechanistic interpretation of chemical reactions	
i) The characteristic properties of elements and their compounds, including group relationships and trends within the Periodic Table	
j) The structural features of chemical elements and their compounds, including stereochemistry	
k) The properties of aliphatic, aromatic, heterocyclic and organometallic compounds	
l) The nature and behaviour of functional groups in organic molecules	
m) Major synthetic pathways in organic chemistry, involving functional group interconversions and carbon-carbon and carbon-heteroatom bond formation	
n) The relation between bulk properties and the properties of individual atoms and molecules, including macromolecules (both natural and man-made), polymers and other related materials	
o) The structure and reactivity of important classes of biomolecules and the chemistry of important biological processes.	

TABLE 3.

Outcomes: Generic Competences

Please give brief details of how (for example in which course units/modules) these generic competences are dealt with in the degree programme.

1.1 The capacity to apply knowledge in practice, in particular problem-solving competences, relating to both qualitative and quantitative information.

1.2 Numeracy and calculation skills, including such aspects as error analysis, order-of-magnitude estimations, and correct use of units.

1.3 Information-management competences, in relation to primary and secondary information sources, including information retrieval through on-line computer searches.

1.4 Ability to analyse material and synthesise concepts.

1.5 The capacity to adapt to new situations and to make decisions.

1.6 Information-technology skills such as word-processing and spreadsheet use, data-logging and storage, subject-related use of the Internet.

1.7 Skills in planning and time management.

1.8 Interpersonal skills, relating to the ability to interact with other people and to engage in team-working.

1.9 Communication competences, covering both written and oral communication, in one of the major European languages (English, German, Italian, French, Spanish) as well as in the language of the home country.

1.10 Study competences needed for continuing professional development. These will include in particular the ability to work autonomously.

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1.11 Ethical commitment

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2. Outcomes: Chemistry-based Practical Skills

Please state how many credits out of the total number of credits for the programme are allocated to practical courses. Please give brief details of the type of instruction given in the practical courses (e.g. group instruction, hands-on laboratory work).

The answers to this point should not exceed one page of text!

3. Content

Please supply the following information:

- 3.1 The total number of modules/assessed course units which the study programme comprises.
- 3.2 The minimum and maximum size of modules (if applicable).
- 3.3 A list of elective modules/course units typically taken by students (title and number of credits only).
- 3.4 The total number of credits carried by modules/course units (including the Bachelor Thesis if applicable) which deal with chemistry, physics, biology or mathematics.

Please keep your answer as brief as possible!

4. Distribution of Credits

The following information is required:

- 4.1 The number of credits forming the "core" as defined in the Eurobachelor[®] document.
- 4.2 How many additional sub-disciplines³ are available and how many credits are allocated to each.
- 4.3 How many of these sub-disciplines the student is required to study.
- 4.4 Which language modules/course units are on offer and whether these are compulsory, semi-optional or elective ("the Eurobachelor[®] should be proficient in a second (major) European language as well as the language of his/her home country")
- 4.5 To which extent the institution offers individually-negotiated study programmes.

5. ECTS and Student Workload

Please provide the following information:

- 5.1 How many weeks per year do you expect your students to spend on academic study?
- 5.2 How many hours per week is the average student expected to spend on academic study?
- 5.3 How student workload was *estimated* when assigning credits to modules/course units.
- 5.4 Mechanisms used for continuous student feedback on *actual* workload and for the use of this feedback to correct the structure of programmes where necessary

The answers to this point should not exceed half a page of text!

³ Subdisciplines of chemistry are: organic, inorganic, physical, analytical, biological, theoretical, computational etc.

6. Modules/Course Units and Mobility

Please provide the following information:

6.1 Is mobility possible in:

Year 1?

Year 2?

Year 3?

6.2 Are certain modules/course units (apart from those assigned to year 1) defined as being "non-transferable", i.e. they must be taken at the home institution? If so, please list these modules/course units.

7. Methods of Teaching and Learning

Please briefly describe your methods of teaching and learning. You may wish to include information on the following points:

7.1 Tutorial system

7.2 Teaching in small groups:

a) in practical courses

b) in theoretical courses

7.3 Problem-solving classes

7.4 Multimedia teaching techniques

7.5 Teamwork as an element of teaching.

7.6 Bachelor Thesis (Dissertation, project)

7.7 Industrial placement which carries credits.

7.8 Committees with student participation

Answers to this point should not exceed one page of text!

8. Assessment procedures and performance criteria

Please summarise the assessment procedure involved in this study programme. You may wish to include information on the following points:

8.1 Is assessment carried out with examinations at the end of each term or semester?

8.2 Are "comprehensive examinations" at the end of the study programme used? If so, how are they organised and how many credits do they carry (individually and in total)

8.3 Is more use made of written or of oral examinations?

8.4 For written examinations: is the marking checked by a second examiner?

8.5 For oral examinations: how many persons are involved as examiners or note-takers in each examination?

8.6 What is the minimum and maximum time allowed for written examinations?

8.7 Are examination papers marked anonymously?

8.8 Is the student provided with feedback, for example in the form of "model answers"?

8.9 Is there an examination board which approves written examinations or is this the individual responsibility of the teacher(s) concerned?

The answers to this point should not exceed one page of text!

9. Grading

Please supply the following information:

9.1 Is the ECTS grading system used for a) mobile and b) home students?

9.2 How are ECTS grades assigned and by whom?

10. The Diploma Supplement

Please supply the following information:

10.1 Is each graduate issued with a European Diploma Supplement (http://europa.eu.int/comm/education/policies/rec_qual/recognition/diploma_en.html) automatically? If not, describe the method of issue.

10.2 In which language(s) is the Diploma Supplement issued?

11. Quality Assurance

The chemistry Eurobachelor[®] designation is a quality label and involves the formation of one of the first trans-national European quality assurance networks in the emerging European Higher Education Area.

Quality assurance (or quality enhancement) is also an internal matter, and thus the applicant is asked to describe briefly the internal quality assurance procedures of the faculty/department and (if these have a direct impact on the faculty/department) of the institution.

The answer to this point should not exceed half a page of text!

12. Employability

Please provide brief answers to the following questions:

12.1 What forms of employment do students with this qualification to enter?

12.1 What percentage of your graduates continue their studies to a Master or doctoral programme in your or other institutions?

Please supply evidence if available.

The answer to this point should not exceed half a page of text!

13. Ethical concern

Please provide a short description how your institution takes care about “ethics in chemistry” (plagiarism, proper citations, originality and trustworthy results, EuCheMS Code of Conduct, etc.)

The answer to this point should not exceed half a page of text!

14. Use of EChem Test

Describe briefly how your institution is using ECTN-A EChemTest (www.echemtest.net) and how are your experiences with this tool (EChemTests are considered as good practice and welcomed by the LC).

The answer to this point should not exceed half a page of text!

Statement of Applicant

As stated in the Eurobachelor[®] paper:

" A primary aim of the Eurobachelor[®] qualification is to provide a degree which will be recognised by other European institutions as being of a standard which will provide automatic right of access (though not right of admission, which is the prerogative of the receiving institution) to chemistry Master programmes."

The self-evaluation report must therefore end with the following declaration:

I (full name, position as head of the institution/department/faculty responsible for the study programme) hereby agree that this (institution/department/faculty) will, if awarded the Eurobachelor[®] label, recognise Bachelor degrees in chemistry awarded by other institutions holding the Eurobachelor[®] label as providing automatic right of access (but not of admission) to chemistry Master programmes offered by this (institution / department / faculty).

I hereby authorise the ECTN-A Label Committee to archive the information provided as well as to use it (without giving the source) to further scientific, statistical, publicity, and educational use.

It must also be signed, stamped and dated by the person making the declaration.

Appendix

ECTS Specification for the Module/Course Unit Descriptions (from the "Key Features")

- Course title
- Course code
- Type of course
- Level of course
- Year of study
- Semester/trimester
- Number of credits allocated (workload based)
- Name of lecturer
- Objective of the course (expected learning outcomes and competences to be acquired)
- Prerequisites
- Course contents
- Recommended reading
- Teaching methods
- Assessment methods
- Language of instruction



Table to be filled in on each labelled programme or a programme that is submitting the label application.

Data from the table will be used in the ECTN-A label Committee and EC2E2N Transparency databases and published. By submitting the data the responsible authorities of the respective University agree with databasing and publication.

Institution (& ERASMUS Code)	English name of the institution	ERASMUS Code
	Name of the institution in original language	
Faculty/Department	Name of the faculty or department	
Qualification awarded (& ERASMUS Subject Area Code)	Title of the qualification awarded in English	ERASMUS Subject Area Code
	Title of the qualification awarded in original language	
Level of qualification (Bologna & EQF)		Number of EQF (ex : 6 for EQF6)
Name of qualification (programme) in English		
Name of qualification (programme) in original language		
Specific admission requirements	Specific admission requirements (Entry qualifications)	
Language of instruction	Main language	
Website of the programme	Address of the institution Web site	
Short description of the programme	Key-words for scientific content	
Mode of study	Full time or part time	
Duration	Number of semesters in the program (ex : 4)	
Number of ECTS credits	Number of ECTS in the whole program	
Academic year in which this degree was, or will be, introduced (valid for 5 years)		
Beginning of the program (month): Academic calendar: Application deadline (if any) :		
Hyperlink to course guide: ECTS catalogue	Link where the ECTS catalogue is available	
Hyperlink to further documents	Link to further documents	
Date/No. of Eurolabel[®] last (re)award	Date and No. of Eurolabel [®] award (Eurobachelor [®] Euromaster [®])	
Eurolabel[®] certificate No.		
Eurolabel[®] awarded by	agency, directly ECTN-A	
Person to be contacted about the programme	First name, last name, position, postal address, phone, e-mail address	
Date of last update	Year of last modification	
Name and email of the person responsible for this table content	First name, last name, position, postal address, phone, e-mail address	