



swiss center of accreditation and  
quality assurance in higher education

**Proposal for accreditation**

**Study Programme in Pharmacy**

**Swiss Federal Institute of Technology Zurich (ETH Zürich)**

**OAQ Report**

7 May 2012

## Content

1	Frame of reference, object and procedural steps .....	3
1.1	Frame of reference.....	3
1.2	Object of the accreditation procedure .....	4
1.3	Procedural steps .....	5
1.4	The panel of experts .....	5
1.5	Reference documents .....	6
2	External Evaluation .....	6
2.1	The self-evaluation report .....	6
2.2	The on-site visit .....	6
2.3	Assessment of the fulfilment of the quality standards by the experts .....	7
2.4	Compliance with the legal requirements .....	8
2.5	Position statement of the unit under accreditation on the experts' report .....	8
2.6	Consultation of the OAQ Scientific Advisory Board .....	9
2.7	Consultation of the MEBEKO .....	9
3	Conclusion of the OAQ .....	9
3.1	OAQ's proposal for accreditation according to UFG to the attention of the SUC.....	14
3.2	OAQ's proposal for accreditation according to MedBG to the attention of the Swiss Accreditation Council .....	14
3.1	Antrag des OAQ auf Akkreditierung gemäss UFG an die SUK .....	14
3.2	Antrag des OAQ auf Akkreditierung gemäss MedBG an den Schweizerischen Akkreditierungsrat .....	15
3.1	Proposition de l'OAQ relative à l'accréditation selon la LAU adressée à la CUS .....	15
3.2	Proposition de l'OAQ relative à l'accréditation selon la LPMed adressée au Conseil suisse d'accréditation.....	15
4	List of Abbreviations.....	16

## 1 Frame of reference, object and procedural steps

### 1.1 Frame of reference

The accreditation of study programmes leading to a Federal Diploma in Pharmacy is mandatory according to the Federal Law on Medical Professions of 23 June 2006 (MedBG, Art. 23 § 1)<sup>1</sup>. The Federal Law on Financial Aid to Universities of 8 October 2009 (UFG)<sup>2</sup> and Art. 24 § 1 MedBG define the criteria that must be fulfilled for accreditation of study programmes. The legally defined educational objectives are of key importance (Art. 4 MedBG, Art. 6-10 MedBG).

The quality assessment is based upon Quality Standards<sup>3</sup> that were developed by the Deans of the five Swiss Medical faculties, in cooperation with the Swiss Center of Accreditation and Quality Assurance in Higher Education (OAQ) and the Federal Office for Public Health (FOPH). They were based on the internationally accepted “Basic Medical Education WFME Global Standards for Quality Improvement”<sup>4</sup> and authorised on 11 June 2003 by the Joint Commission of the Swiss Medical Schools (SMIFK). In 2007 and 2010 on behalf of the FOPH, the OAQ revised and adapted the quality standards to the MedBG and to the specificities of pharmacy in consultation with the three Swiss academic institutions responsible for the pharmaceutical education. Those Quality Standards comply with the international recommendations of the “Pharmacy Education Taskforce”.<sup>5</sup>

This work resulted in the development of the quality standard set “Accreditation of Study Programmes in Pharmacy. Quality Standards”<sup>6</sup>, dated April 2010, which comprises the educational objectives specified in Art. 4, 6, 7, 8 of the MedBG as well as the general quality standards for study programmes outlined in Art. 10 of the Accreditation Guidelines of the Swiss University Conference (SUC)<sup>7</sup>.

Between March 2010 and August 2012 the OAQ conducts the accreditation procedures of all the Bachelor and Master programmes in Veterinary Medicine, Human Medicine, Dental Medicine and Pharmacy.

These procedures foresee the assessment of the fulfilment of the accreditation criteria according to the MedBG as well as the fulfilment of the quality standards according to the SUC Accreditation Guidelines.

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<sup>1</sup> Bundesgesetz über die universitären Medizinalberufe vom 23. Juni 2006 (MedBG), SR 811.11.

<sup>2</sup> Bundesgesetz über die Förderung der Universitäten und über die Zusammenarbeit im Hochschulbereich vom 8. Oktober 1999 (UFG), SR 414.20.

<sup>3</sup> Accreditation of Study Programmes in Pharmacy / Pharmaceutical Sciences, Quality Standards, April 2010, Federal Department of Home Affairs (FDHA), Federal Office of Public Health (FOPH), from now quoted as „Quality Standards“.

<sup>4</sup> The standards of the World Federation for Medical Education (WFME) can be downloaded on [www.wfme.org](http://www.wfme.org)

<sup>5</sup> [www.fip.org/pharmacy\\_education](http://www.fip.org/pharmacy_education)

<sup>6</sup> [www.baq.admin.ch/themen/berufe/03937/03939/index.html?lang=de](http://www.baq.admin.ch/themen/berufe/03937/03939/index.html?lang=de)

<sup>7</sup> Guidelines of the Swiss University Conference for Academic Accreditation in Switzerland (Accreditation Guidelines) of 28 June 2007, SR/RS 414.205.3.

The accreditation proposals to the two accrediting bodies, the SUC (UFG criteria) and the Swiss Accreditation Council (MedBG criteria) are each limited to the respective quality criteria. However, the accreditation decision according to UFG is a precondition for accreditation according to MedBG.

The conceptual planning of the procedures as well as all accompanying instruments were defined by the OAQ under the mandate of the FOPH and in cooperation with the SUC and the FOPH itself.

## 1.2 Object of the accreditation procedure

The object of the accreditation procedure is the study programme in Pharmaceutical Sciences (“Bachelor of Science” in Pharmaceutical Sciences and “Master of Science” in Pharmaceutical Sciences) of the Swiss Federal Institute of Technology Zurich (ETH Zurich). The ETH Zurich also offers a MSc in Medicinal and Industrial Pharmaceutical Sciences, which is consecutive of the BSc in Pharmaceutical Sciences, but does not lead to the Federal Diploma of Pharmacist, and therefore isn’t part of the current accreditation procedure.

This study programme belongs to the Department of Chemistry and Applied Biosciences (D-CHAB) and is under the operational responsibility of the Institute of Pharmaceutical Sciences (IPW)<sup>8</sup>.

The D-CHAB, composed of 3 institutes and 2 laboratories, is directed by the Departmental Conference chaired by the head of the Department. The head of the Department is appointed by the president of the ETH Zurich upon nomination by the Departmental Conference. His main responsibility is the appropriate use and distribution of the budget of the Department and the confirmation of the heads of the 5 institutes/laboratories.<sup>9</sup>

The IPW is the largest institute of the D-CHAB, with 12 professors and 454 students<sup>10</sup>. All elected professors compose the board of the institute. The board elects the head of the institute (which rotates every 2 years) and nominates the director of studies. The latter is responsible for the management of the full study programme.<sup>11</sup>

The first two years of the Bachelor programme are not taught by IPW faculty staff, but are offered by other institutes of the D-CHAB (chemistry) or by other departments of the ETH Zurich (biology, physics, mathematics, anatomy and physiology).<sup>12</sup> The curriculum committee of the IPW, chaired by the director of studies, monitors and assesses the quality

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<sup>8</sup> Self-evaluation report, p.1.

<sup>9</sup> Self-evaluation report, p.50.

<sup>10</sup> Based on Annex 9, „IPW-Students and Staff Statistics“ of the self-evaluation report.

<sup>11</sup> Self-evaluation report, p.50.

<sup>12</sup> Self-evaluation report, p.6.

of the overall programme<sup>13</sup> and a coordinator manages the 2<sup>nd</sup> year (practical year) of the Master programme.<sup>14</sup>

### 1.3 Procedural steps

02.10.2010	Opening of the procedure
18.07.2011	Approval of the experts' panel by the Swiss Accreditation Council
29.07.2011	Approval of the experts' panel by the Scientific Advisory Board of the OAQ
15.08.2011	Self-evaluation report of the ETH Zurich
27-29.09.2011	On-site visit of the Institute of Pharmaceutical Sciences ETH Zurich
10.11.2011	Preliminary experts' report
27.11.2011	Position statement of the Institute of Pharmaceutical Sciences ETH Zurich
07.12.2011	Final experts' report
15.02.2012	Draft OAQ report with proposal on accreditation decision
27.03.2012	Statement of the Scientific Advisory Board of the OAQ
03.04.2012	Statement of the MEBEKO
07.04.2012	Final OAQ report with proposal on accreditation decision

The procedure was properly conducted under all formal aspects and legal requirements.

### 1.4 The panel of experts

- Prof. Dr. Michael WINK, Peer Leader (Ruprecht-Karls-Universität Heidelberg, Germany)
- Prof. Dr. Michael MÜLLER, (Albert-Ludwigs-Universität Freiburg, Germany)
- Prof. Dr. Bernard MASEREEL (University of Namur, Belgium)
- Mathieu LOUIS, Student MSc in Pharmacy (University of Geneva, Switzerland)

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<sup>13</sup> Self-evaluation report, p.2.

<sup>14</sup> Self-evaluation report, p.13.

## 1.5 Reference documents

- Self-evaluation report, BSc and MSc Study Programmes in Pharmaceutical Sciences ETH Zürich, July 2011
- Experts' report, dated 7<sup>th</sup> December 2011
- Position statement of the ETH Zurich, dated 27<sup>th</sup> November 2011
- Statement of the MEBEKO dated 3<sup>rd</sup> April 2012

## 2 External Evaluation

### 2.1 The self-evaluation report

The Institute of Pharmaceutical Sciences of the ETH Zurich delivered its self-evaluation report in due time. The self-evaluation report, written in English, contains 62 pages complemented by 9 annexes. Each quality area is treated in one full chapter and a SWOT analysis concludes each sub-area, giving a full view of the study programme.

The OAQ judges that the self-evaluation report provided the necessary information basis for the site visit.

### 2.2 The on-site visit

The on-site visit took place from 27<sup>th</sup> to 29<sup>th</sup> of September 2011. On the eve of the visit, a briefing session chaired by 2 collaborators of the OAQ took place in Zurich, during which the experts undertook a preliminary assessment of the self-evaluation report.

On the first day of their visit, the experts requested the following additional documents, which were not included in the appendices to the self-evaluation report:

- Course programme and detailed description
- Professors' CVs
- Statistics on student examination results

These documents were delivered by the IPW on the same day and made available to the experts throughout their visit.

All the interviews held during the visit took place at the premises of the Institute of Pharmaceutical Sciences, Hönggerberg Campus of the ETH Zurich. The experts' team had the opportunity to interview the Faculty members during the 12 sessions organised by the OAQ. Visits of the teaching premises, including research and practical laboratories, were also done.

The on-site visit ran according to plan; the experts were warmly welcomed and the arrangements for their visit organized perfectly. Senior IPW staff, however, were concerned

at the somewhat aggressive attitude taken by the experts to those being interviewed, which created something of a tense atmosphere during the interviews.

Overall, the OAQ confirms that the visit was run in accordance with current requirements and that it was suitable for the purpose of external evaluation of the programme according to normal procedures.

### 2.3 Assessment of the fulfilment of the quality standards by the experts

Based on the individual examination of all the areas the experts have highlighted the following strengths of the BSc and MSc in Pharmaceutical Sciences<sup>15</sup>:

- Excellent infrastructures that allow the best environment for teaching and learning
- Ideal research environment with internationally recognized professors
- Very good organization and structure of the Master courses
- High level of motivation and teaching by all professors and lecturers throughout the Bachelor and the Master programmes

As for the weaknesses, the experts note the following points:

- Overloaded Bachelor programme
- Lack of policy for the transfer of ECTS credits and therefore too low out-going students' mobility
- The number of elective courses is very low, especially in the Bachelor programme
- Not sufficient contact with the Faculty of Medicine and the medical professions

In their report, the experts have indicated various recommendations for the quality improvement of the study programme and for its further development. Additionally, they have formulated three conditions for accreditation with regard to the following standards:

Standard 02.02.01: Structure of the Study Programme

CONDITION 1: The academic unit needs to define Modules (or module-like elements or "strukturierte thematische Einheiten") which comprise courses of related contents. Each Module (or module-like element or "strukturierte thematische Einheit") should have a responsible person who knows the teaching content and teaching load of the courses within a module.

- Standard 02.05.02: Basic Natural and Biomedical Sciences

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<sup>15</sup> Experts' report, p.32-33.

CONDITION 2: Members of the academic unit (IPW) must be actively involved in the process of identification of the contributions of the basic natural and biomedical sciences, so that the needs of pharmacy students can be integrated into the 1st, and the 2nd year of the Bachelor programme.

- Standard 04.02.02: Relationship Between Assessment and Learning

CONDITION 3: Reduce the number of examinations by having integrated exams for modules (or module-like elements or “strukturierte thematische Einheiten”) instead of individual exams for each course or lecture. Guarantee that time required for the preparation for exams is in agreement with ECTS credit points. Members of the academic unit (IPW) must be actively involved in the organization of the number and kind of examinations within the whole Pharmacy study programme.

- Standard 08.02.01: Academic Leadership

CONDITIONS 1 and CONDITION 2 apply.

As a conclusion, the experts recommend the accreditation of the study programme in Pharmaceutical Sciences of the ETH Zurich with 3 conditions to be reviewed within 2 years.

## 2.4 Compliance with the legal requirements

The experts’ panel concludes that the BSc and MSc Study Programmes in Pharmaceutical Sciences of the Swiss Federal Institute of Technology Zurich (ETH Zurich) comply with the legal requirements according Art. 24 MedBG.

## 2.5 Position statement of the unit under accreditation on the experts’ report

In its position statement of 27th November 2011<sup>16</sup>, the IPW took the view that the three conditions set by the experts undermined the freedom of higher education institutions to define for themselves “the internal horizontal and vertical structure of their Bachelor and Master programmes” as defined by the CRUS<sup>17</sup> and therefore consider them to be unacceptable. It considers that in formulating these three conditions, the experts “overstepped their mandate” and that they cannot therefore be considered as conditions of accreditation.

In addition, the IPW wishes to comment on three main areas of concern identified by the experts:

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<sup>16</sup> Response to the expert report on the study programmes in pharmacy/pharmaceutical sciences at the ETH Zürich, dated 27th November 2011. Cited from now on as “Response to the expert report”.

<sup>17</sup> CRUS recommendations on coordinated reform of teaching in Swiss higher education institutions under the terms of the Bologna process. Version dated 1 October 2008 as amended on 1 February 2010, p.68



- Concerning the duration of studies for the award of the MSc in Pharmaceutical Sciences, the IPW confirms that the majority of graduates have completed a total of 11 semesters of study, which is more than acceptable in terms of length.

- Concerning student workload, the IPW recognizes that this is generally very high, in particular until the Bachelor programme has been completed, and that there is scope for adjustments without compromising the quality of the course. It believes, however, that any reorganization of the course should be the result of internal discussions at ETH Zurich and cannot be imposed as a condition of accreditation.

- Concerning compatibility with the Bologna Declaration, the IPW's views are based on Art. 1 § 2 of the Bologna Directives of the SUC and on Art. 6.4 of the CRUS Recommendations. It concludes that the "course units" structure applicable to the Pharmaceutical Sciences course at ETH Zurich complies fully with Swiss requirements in this regard.

## 2.6 Consultation of the OAQ Scientific Advisory Board

The OAQ sent the self-evaluation report, the experts' report, the comments of the ETHZ and the OAQ's draft report to its Scientific Advisory Board on 27.03.2012 for consultation. The results of the discussions in the Board were taken into account for the final report.

## 2.7 Consultation of the MEBEKO

The OAQ sent the self-evaluation report, the experts' report, the comments of the University of Fribourg and the OAQ's draft report to the MEBEKO on 21. February 2012 for the first consultation, according to Art. 27 § 5 MedBG. The OAQ received the statement on 3<sup>rd</sup> April 2012 and considered it in its final report.

## 3 Conclusion of the OAQ

Accreditation of programmes of study in Pharmacy and Pharmaceutical Sciences is mandatory according to Art. 23 § 1 of the Federal Law on Medical Professions (MedBG)<sup>18</sup>. As a result, the quality standards developed for this accreditation are binding and a decisive factor in the final judgment reached by the two decision-making bodies. It should be noted that positive accreditation does not require that every standard be met in full. The proposal for accreditation is based on the overall judgment of the quality of the programme of the group of experts and the OAQ.

According to the conclusions of the group of experts, the vast majority of standards are met in full, thus confirming the quality offered by the programme under consideration. Some of the standards, however, were considered to have been only partially met, leading the

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<sup>18</sup> Art. 23 § 1 of the Federal Law on Medical Professions (MedBG): Any study programme leading to the award of a Federal qualification must be accredited in accordance with the Federal Law on Financial Aid to Universities of 8 October 1999 and current legislation.

experts to reach the conclusion that further improvements could be made. As a result the experts have formulated a number of recommendations intended to improve the quality of the course as a whole.

Furthermore, the experts formulated three conditions related to four standards they consider not fulfilled. OAQ does neither sustain the assessment of the four standards nor the concluding conditions.

## Condition 1

*Standard 02.02.01: 1. The academic unit describes and defines the contents, extent, and sequencing of the study programme elements, including the balance between core and optional content.*

As described in the self-evaluation report: *“Lecture and laboratory courses in the first and second year of the Bachelor programme, i.e. courses in the basic natural and medical sciences, are not taught by IPW faculty or staff, but are contributed as a service by other institutes within the academic unit (chemistry) or other departments of the ETH Zürich (biology, physics, mathematics, anatomy and physiology).”*<sup>19</sup>

The experts consider that the IPW does not really define the course content for the first two years and that the standards cannot therefore be viewed as having been met. Furthermore, the experts would like closer coordination between the courses offered during the third year of the Bachelor programme and those offered in the first and second year, in order to avoid students being overloaded with work and thereby reduce the number of examination failures.<sup>20</sup> In order to achieve this, they propose two requirements:

- The academic unit needs to define Modules (or module-like elements or “strukturierte thematische Einheiten”) which comprise courses of related contents.
- Each Module (or module-like element or “strukturierte thematische Einheit”) should have a responsible person who knows the teaching content and teaching load of the courses within a module.

In its position statement, the IPW refers to Art. 6.4 of the of the CRUS Recommendations<sup>21</sup> and states that: *“At the ETH Zürich the “strukturierte thematische Einheit” referred to in this definition is simply called “course unit” or “Lerneinheit” rather than “Modul”.”*<sup>22</sup>

However, the CRUS was also in favour of harmonizing terminology and “recommends that universities make coherent use of the following concepts and definitions: (...), “module” (“Modul”).”<sup>23</sup>

<sup>19</sup> Self-evaluation report, p.6.

<sup>20</sup> Experts’ report, p.10-11.

<sup>21</sup> **Module** (Modul): a self-contained, structured, thematic unit, for which the volume in ECTS credits, the learning objectives and assessment criteria are set. A module consists of one or more learning and/or teaching units. A study programme, main focus or option outside the study programme consists of one or more modules.

<sup>22</sup> Response to the expert report, p.3.

Full basic education in pharmacy in Switzerland is delivered by three higher education institutions: the University of Geneva, the University of Basel and the ETH Zurich. The universities of Fribourg and Berne offer the first two years of the course, whilst the universities of Lausanne and Neuchâtel offer the first year. Traditionally, the first two years of the course are devoted to the acquisition of a basic understanding of natural and biomedical sciences. Students are then free to pursue their pharmacy studies in one of the three higher education institutions which deliver the full course. It is common for part of the course to fall “outside” the responsibility of the accredited faculty. The course offered by ETH Zurich therefore meets Swiss requirements and it is able to accept students who have begun their studies in another institution.

In light of the above, it must be concluded that the IPW fulfils the requirements set by standard 02.02.01, although the institute does not deliver the courses for the first two years itself, it does coordinate and monitor the content, scope and timing of the study programme and ensures it is compatible with Swiss requirements. The detailed internal organization of the study programme is, in accordance with the Recommendations of the CRUS<sup>24</sup>, the responsibility of the academic unit.<sup>25</sup>

The experts base condition 1 on a second line of arguments referring to:

*Standard 08.02.01: The responsibilities of the academic leadership of the academic unit for the study programme are clearly stated.*

The experts note that “one of the major shortcomings of the Bachelor is that the first 2 years of the study programme are outside the responsibility of the IPW”<sup>26</sup> and therefore consider that the standard has not been met.

As noted above, it is common in Switzerland for part of the pharmacy course to fall “outside” the responsibility of the accredited faculty, without necessarily contravening the requirements laid down in the accreditation standards.

Academic responsibilities at the ETH Zurich are defined in the Swiss Federal Law on the Swiss Federal Institutes of Technology. With regard to the IPW, “the operational responsibility is assigned to the director of studies together with the curriculum committee. The obligations and competencies of the director of studies are defined by the bylaws of the academic unit”. A co-ordinator is responsible for management of the second year of the Master programme and keeps the director of studies regularly informed.<sup>27</sup>

Standard 08.02.01 is met and the OAQ proposes to take up the recommendations formulated with regard to standards 02.02.01 and 02.05.02.

<sup>23</sup> Art. 6.6 of the CRUS recommendations.

<sup>24</sup> Art. 1.6 of the CRUS Recommendations. **Internal structure of courses of study:** Universities are free to define the internal horizontal and vertical structure of their Bachelor and Master courses.

<sup>25</sup> See also: Response to the expert report, p.3.

<sup>26</sup> Experts’ report, p.30.

<sup>27</sup> Self-evaluation report, p.52.

Condition 1 set by the experts can thus not be seen as a condition of accreditation. Standard 02.02.01 is met and the OAQ proposes to turn this condition into a recommendation. Nonetheless, the OAQ emphasizes the importance of harmonizing terminology by using the term “module” in accordance with the recommendations of the CRUS.

## Condition 2

*Standard 02.05.02: The contributions of natural and biomedical sciences are adapted to scientific, technological, and clinical developments, as well as to the health needs of society.*

The experts note that *“the teaching of 1<sup>st</sup> and 2<sup>nd</sup> year of the Bachelor is dominated by Chemistry, Physics, Mathematics and Biology and is apparently independent from the teaching in the 3<sup>rd</sup> year”*. They also consider that *“a total work load equivalent to 26 credit points in mathematics, physics and computer sciences is inappropriately high in comparison to pharmacy-specific courses and lectures”*.<sup>28</sup> They propose the following condition:

Members of the academic unit (IPW) must be actively involved in the process of identification of the contributions of the basis natural and biomedical sciences, so that the needs of pharmacy students can be integrated into the 1st and the 2<sup>nd</sup> year of the Bachelor programme.

As noted above, it is common for the first two years of Bachelor programmes in Pharmacy and Pharmaceutical Sciences in Switzerland to be devoted primarily to natural and biomedical sciences, in particular by agreement with the two other higher education institutions delivering the full MSc in Pharmacy.

Whilst it is fair to say that the first two years of the course offer relatively limited coverage of subjects specific to pharmacy, this does not contravene the standard to which the condition refers. In fact, the standard requires that the content of courses in natural and biomedical sciences reflects the latest developments and scientific research in the field, based on the needs of society, rather than according to the needs of pharmacy students. The IPW confirms that *“new basic knowledge, but also new techniques and technologies are continuously integrated into both lecture and laboratory courses”*.<sup>29</sup>

Moreover, the analysis cannot be limited to the contents of courses offered in the Bachelor programme, but must cover the entire study programme, including the Master. From the third year of the Bachelor, and during the two years of the Master, the study programme is primarily devoted to branches and contents specific to Pharmacy and Pharmaceutical Sciences.<sup>30</sup>

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<sup>28</sup> Experts' report, p.13.

<sup>29</sup> Self-evaluation report, p.16.

<sup>30</sup> See description of courses delivered, Self-evaluation report, p. 12.

The experts base condition 2 on a second line of arguments referring to Standard 08.02.01, which they already used for condition 1 and which OAQ already argued against under condition 1, above.

Condition 2 set by the experts can thus not be seen as a condition of accreditation. Standard 02.05.02 is met and the OAQ proposes to turn this condition into a recommendation.

### Condition 3

*Standard 04.02.02: The number and type of examinations encourage integrated and interdisciplinary learning.*

The experts consider that *“the large number of performance assessments clearly negatively impacts learning outcome and does not encourage integrated and interdisciplinary learning”*<sup>31</sup>. They propose the following measures:

- 1) Reduce the number of examinations by having integrated exams for modules instead of individual exams for each course of lecture.
- 2) Guarantee that time required for the preparation for exams is in agreement with ECTS credit points.
- 3) Members of the academic unit (IPW) must be actively involved in the organization of the number and kind of examinations within the whole Pharmacy study programme.

With regard to measure 3 and as noted above, it is outside the scope of this accreditation process to demand a complete reorganization of responsibilities in the management of the first two years of the Bachelor in Pharmacy programme. Measure 3 as proposed can therefore not be considered as part of a condition of accreditation.

With regard to measure 2, it was clearly apparent during the interviews carried out as part of the on-site visit that the award of ECTS credits did not always correspond with the workload students actually had to complete to satisfy the requirements. Some examinations worth only 3 ECTS credits, for example, required over 80 hours of personal preparation in addition to classroom study. This runs counter to the requirements of Art. 2.4 of the CRUS Recommendations<sup>32</sup>. Standard 04.02.02, however, does not set out any requirements regarding the relationship between workload and the number of ECTS credits awarded. Measure 2 as proposed can therefore not be considered as part of a condition of accreditation.

With regard to measure 1 as proposed, the OAQ partly agrees with the experts' analysis. It seems on the basis of the interviews and self-evaluation report that the “number and type of

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<sup>31</sup> Experts' report, p.19.

<sup>32</sup> Calculation of credits: The number of credits awarded per course unit is not determined on the basis of the number of hours per week spent on a course (in terms of classroom attendance) but the total time invested to achieve the “learning outcomes”, including assessment of performance, i.e. the “student workload”.

examinations” does not encourage integrated and interdisciplinary learning. Students are required to take an examination in each of the courses delivered during the semester, creating an extremely heavy workload to prepare for them. The total number of examinations could therefore be reduced and interdisciplinary examinations introduced as far as possible. But as this fact considers mainly the Bachelors level and not the whole study programme, OAQ proposes to formulate a recommendation instead of a condition:

Develop new forms of exams, promoting integrated and interdisciplinary learning. To this aim, reduce the number of individual exams.

In conclusion, based on the self-evaluation report, the experts’ report, the comments of the ETH Zurich on the expert’s report, the statement of the MEBEKO and of the Scientific Advisory Board, the OAQ concludes that the BSc and MSc Study Programmes in Pharmaceutical Sciences of the ETH Zurich fulfil to a large extent the Quality Standards of the FOPH for accreditation.

### **3.1 OAQ’s proposal for accreditation according to UFG to the attention of the SUC**

Concluding that the Study Programme in Pharmaceutical Sciences of the ETH Zurich fulfils to a large extent the accreditation standards pursuant to art. 10 of the Accreditation Guidelines, the OAQ thus recommends to the attention of the Swiss University Conference:

**Accreditation of the Study Programme in Pharmaceutical Sciences of the ETH Zurich for a period of 7 years without conditions.**

### **3.2 OAQ’s proposal for accreditation according to MedBG to the attention of the Swiss Accreditation Council**

Concluding that the Study Programme in Pharmaceutical Sciences of the ETH Zurich fulfils to a large extent the objectives and accreditation criteria pursuant to Art. 4, 6, 7, 8 and 24 of the MedBG, the OAQ thus recommends to the attention of the Swiss Accreditation Council:

**Accreditation of the Study Programme in Pharmaceutical Sciences of the ETH Zurich for a period of 7 years without conditions.**

### **3.1 Antrag des OAQ auf Akkreditierung gemäss UFG an die SUK**

Das OAQ kommt zum Schluss, dass der Studiengang in Pharmazeutischen Wissenschaften der Eidgenössischen Technischen Hochschule Zürich die Akkreditierungsstandards gemäss Art. 10 der SUK-Richtlinien in grossem Ausmass erfüllt.

**Daher beantragt das OAQ die Akkreditierung des Studiengangs in Pharmazeutischen Wissenschaften der Eidgenössischen Technischen Hochschule Zürich für 7 Jahre ohne Auflagen.**

### **3.2 Antrag des OAQ auf Akkreditierung gemäss MedBG an den Schweizerischen Akkreditierungsrat**

Das OAQ kommt zum Schluss, dass der Studiengang in Pharmazeutischen Wissenschaften der Eidgenössischen Technischen Hochschule Zürich die Ziele und Akkreditierungskriterien gemäss Art. 4, 6, 7, 8 und 24 MedBG in grossem Ausmass erfüllt.

**Daher beantragt das OAQ die Akkreditierung des Studiengangs in Pharmazeutischen Wissenschaften der Eidgenössischen Technischen Hochschule Zürich für 7 Jahre ohne Auflagen.**

### **3.1 Proposition de l'OAQ relative à l'accréditation selon la LAU adressée à la CUS**

L'OAQ certifie que la filière d'études en Sciences pharmaceutiques de l'Ecole Polytechnique Fédérale de Zurich satisfait aux standards d'accréditation conformément à l'art. 10 des directives de la CUS et **propose l'accréditation de la filière d'études en Sciences pharmaceutiques de l'Ecole Polytechnique Fédérale de Zurich pour 7 ans sans conditions.**

### **3.2 Proposition de l'OAQ relative à l'accréditation selon la LPMed adressée au Conseil suisse d'accréditation**

L'OAQ certifie que la filière d'études en Sciences pharmaceutiques de l'Ecole Polytechnique Fédérale de Zurich satisfait aux objectifs et critères d'accréditation conformément aux Art. 4, 6, 7, 8 et 24 de la LPMéd et **propose l'accréditation de la filière d'études en Sciences pharmaceutiques de l'Ecole Polytechnique Fédérale de Zurich pour 7 ans sans conditions.**

## 4 List of Abbreviations

BSc	Bachelor of Science
CRUS	Rectors' Conference of the Swiss Universities
CUS / SUK / SUC	Conférence universitaire suisse / Schweizerische Universitätskonferenz / Swiss University Conference
D-CHAB	Department of Chemistry and Applied Biosciences
ETH Zurich	Swiss Federal Institute of Technology Zurich – Eidgenössische Technische Hochschule Zürich
FOPH	Federal Office of Public Health
IPW	Institute of Pharmaceutical Sciences – Institut für pharmazeutische Wissenschaften
LAU / UFG	Loi fédérale sur l'aide aux universités et la coopération dans le domaine des hautes écoles / Bundesgesetz vom 8. Oktober 1999 über die Förderung der Universitäten und über die Zusammenarbeit im Hochschulbereich
LPMéd / MedBG	Loi fédérale du 23 juin 2006 sur les professions médicales universitaires / Bundesgesetz vom 23. Juni 2006 über die universitären Medizinalberufe
MEBEKO	Commission fédérale des professions médicales / Medizinalberufekommission
MSc	Master of Science
OAQ	Center of Accreditation and Quality Assurance of the Swiss Universities
SMIFK-CIMS	Commission of the Swiss Medical Schools
WFME	World Federation for Medical Education



**Academic accreditation in Switzerland**

**Experts' report**

**Study Programmes in Pharmacy / Pharmaceutical Sciences**

**Department of Chemistry and Applied Biosciences**

**Institute of Pharmaceutical Sciences**

**Swiss Federal Institute of Technology Zurich (ETHZ)**

**Report submitted on 07/12/11**

## Table of content

1	Introduction .....	3
2	Accreditation procedure .....	4
	Self evaluation report.....	4
	Group of experts .....	4
	On-site-visit.....	4
3	Compliance with the Quality Standards .....	5
	Area 1: Mission and Objectives .....	5
	Area 2: Study programme.....	9
	Area 3: Students .....	15
	Area 4: Assessment of students .....	18
	Area 5: Academic staff/faculty .....	20
	Area 6: Educational resources.....	22
	Area 7: Programme evaluation .....	26
	Area 8: Governance and administration .....	28
	Area 9: Continuous renewal/quality assurance .....	31
4	Compliance with the art. 24 para. 1 a and b MedBG .....	32
5	Strengths, weaknesses, recommendations on quality improvement .....	32
6	Comprehensive list of recommendations and conditions.....	32
7	Recommendation on accreditation.....	36

## 1 Introduction

The accreditation for programmes leading to the Federal Diploma in Pharmacy is mandatory according to the Federal Law on Medical Professions from 23 June 2006 (MedBG: Art. 23 Para. 1).<sup>1</sup> Accordingly, the study programmes must fulfil the criteria of the Federal Law on Financial Aid to Universities from 8 October 1999 (UFG)<sup>2</sup> and those of the MedBG in order to be accredited. Article 24, Para. 1 of the MedBG lists the specific criteria, which must be fulfilled for accreditation. The legally anchored educational objectives (Art. 4, 6-10 MedBG) are of central importance.

The accreditation procedure examines the quality of the study programmes on the basis of pre-defined quality standards. These standards are based on quality standards developed by the deans of the five Swiss faculties of medicine in cooperation with the Center of Accreditation and Quality Assurance of the Swiss Universities (OAQ) and the Federal Office of Public Health (FOPH). They have been developed based on the internationally accepted “Basic Medical Education WFME Global Standards for Quality Improvement”<sup>3</sup> and authorised on 11 June 2003 by the Joint Commission of the Swiss Medical Schools (SMIFK). In 2007 on behalf of the FOPH, the OAQ revised and adapted the conditions to the MedBG.

These quality standards follow the international recommendations of the “Pharmacy Education Taskforce”.<sup>4</sup>

Not every single quality standard must be completely fulfilled in order to qualify for accreditation based on MedBG criteria. The recommendation for accreditation by the experts and the accreditation agency, as well as the decision by the independent accreditation council (Art.47, Para. 1, MedBG) is the result of a global judgment.

The present report reflects the estimation of the expert group that was appointed by the OAQ for this accreditation procedure. The expert group analyzed whether the study programme in Pharmaceutical Sciences at the Swiss Federal Institute of Technology (ETH Zurich) fulfil the quality standards defined for this accreditation procedure.

The judgment of the expert group is based on the self-evaluation report of the Swiss Federal Institute of Technology (ETH Zurich), on various interviews carried out with all stakeholders during the on-site-visit and as well as on the visits in the university to see the teaching infrastructure. The report is the concluding part of the review.

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<sup>1</sup>[www.admin.ch/ch/d/sr/8/811.11.de.pdf](http://www.admin.ch/ch/d/sr/8/811.11.de.pdf)

<sup>2</sup>[www.admin.ch/ch/d/sr/4/414.20.de.pdf](http://www.admin.ch/ch/d/sr/4/414.20.de.pdf)

<sup>3</sup>The original standards of the World Federation of Medical Education (WFME) can be found at [www.wfme.org](http://www.wfme.org).

<sup>4</sup> [www.fip.org/pharmacy\\_education](http://www.fip.org/pharmacy_education)

## **2 Accreditation procedure**

### **Self evaluation report**

The accreditation team was given a Self-Evaluation Report for the BSc and MSc Study Programmes in Pharmaceutical Sciences ETH Zürich. The report was prepared by the Institute of Pharmaceutical Sciences (IPW) from the Department of Chemistry and Applied Biosciences. The self-evaluation report was a good source of information for the experts. Its style and content were adequate. Overall, the group of experts greatly appreciated the effort made by the members of the steering group to prepare this report. The report showed a strong involvement of all stakeholders in the BSc and MSc study programmes.

### **Group of experts**

Peer leader:

- Prof. Dr. Michael WINK  
Ruprecht-Karls-Universität Heidelberg  
Institut für Pharmazie & Molekulare Biotechnologie (IPMB)

Experts:

- Prof. Dr. Michael MÜLLER  
Albert-Ludwigs-Universität Freiburg  
Institut für Pharmazeutische Wissenschaften  
Lehrstuhl für Pharmazeutische und Medizinische Chemie
- Prof. Dr. Bernard MASEREEL  
University of Namur  
Dean of the Faculty of Medicine – Dept of Pharmacy
- Mathieu LOUIS  
University of Geneva  
Student, MSc in Pharmacy,

### **On-site-visit**

- The on-site-visit took place between September 26 and 29, 2011, starting with a preparatory session in the late afternoon of the first day, followed by a number of meetings and visits during the following three days.
- The expert team had the opportunity to meet Faculty members and other stakeholders and were able to visit the ETHZ Campus.
- A final de-briefing session concluded the visit on 29.9.2011.

- The experts were impressed by the general setup of ETHZ, the quality of buildings, laboratories and overall infrastructure. The on-site-visit was well-organized: Interview partners were competent and informative. The visit was basically well supported. It would have helped the work of the experts if internet access would have been more reliable.
- The experts could gather the necessary information from the self-evaluation report and from interviews to produce the expert report.
- The general atmosphere of the interviews was friendly and mostly informative.
- The experts missed however representatives of teachers of the first 2 years, such as from Physics, Mathematics, or Chemistry. The experts only met representatives of Biology. They also missed representative (experienced working at the IPW) PhD students.
- The questions of the experts have been answered honestly and openly; only few questions remained open or unanswered.
- The experts were well supported and taken care of in all aspects and phases of the study visit. The time was efficiently organised and allowed the experts to become fully aware of almost all aspects they were interested in during the time available.

### 3 Compliance with the Quality Standards

#### Area 1: Mission and Objectives

**Overall evaluation:** The IPW, the ETHZ, and the principal stakeholders at the ETHZ regarding the pharmaceutical education define its mission and objectives and make them known publicly. The mission statement and objectives are compatible with the strategic planning and the research goals. The ETHZ, and partially the IPW, has a policy within which it has freedom to design the curriculum and allocate the resources necessary for its implementation.

#### Sub-area 1.1: Mission and Objectives

##### Standards

- 1.1.1 The academic unit defines its mission and objectives and makes them known publicly. The mission statement and objectives describe the educational process. After completion of the programme, pharmacists have the ability to practice their profession as well as an appropriate basis for further training in any specialised branch of pharmacy. They are able to take responsibility for their role as pharmacists in the health care system.
- 1.1.2 The mission statement and the objectives take into consideration social responsibility and community involvement.

1.1.3 The mission statement and objectives are compatible with the strategic planning<sup>5</sup> and the research goals.

### **Analysis**

The IPW defines its mission and objectives and makes them known publicly in booklets and on the ETHZ website. The mission statement and objectives describe the educational process. The unit has an excellent teaching body (professors, senior research associates, qualified pharmacists) with broad expertise coverage in pharmaceutical sciences. This enables the unit to offer a Bachelor and Master programme which fulfils the general requirements for the education of pharmacists.

The mission statement and the objectives take into consideration social responsibility and community involvement. Especially, ETHZ Master graduates in pharmaceutical sciences are made aware of social responsibility and community involvement.

The mission statement and objectives are in line with the strategic planning and the research goals of the IPW unit in the area of pharmaceutical sciences.

### **Conclusions**

**St. 1.1.1 fulfilled – no recommendations**

**St. 1.1.2 fulfilled – no recommendations**

**St. 1.1.3 fulfilled – no recommendations**

## **Sub-area 1.2: Participation in formulation of Mission and Objectives**

### **Standard**

1.2.1 The mission statement and objectives regarding the pharmaceutical education of the academic unit are defined by its principal stakeholders and other interested parties.

### **Analysis**

The mission and the objectives of the academic curriculum have been elaborated together by the « Platform Education in Pharmacy » composed of representatives of the three universities teaching pharmacy (University of Geneva, of Basel and ETH Zurich), pharماسuiss (organization of Swiss pharmacists), and the health authorities.

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<sup>5</sup>Compare with 8.1.2.

The mission statement and objectives regarding the pharmaceutical education of the academic unit are defined by its principal stakeholders and other interested parties. In the bachelor course service units outside the IPW (Chemistry, Biology, Mathematics, Physics) teach the first and second year while the faculty and staff members of the IPW teach the third year. The experts are not convinced that the external service units are aware and support the teaching objectives. The coordination between external service units and the IPW appears not optimal, because teaching in the first and second year hardly considered the interests and demands of pharmacy students.

## Conclusions

### St. 1.2.1 fulfilled

**Recommendations:** In the bachelor course a better coordination between service units outside the IPW (Chemistry, Biology, Mathematics, Physics) which teach the first and second year with the faculty and staff members of the IPW teaching the third year is recommended to avoid overlap and to focus the first and second year contents better on the demands of the pharmacy students.

## Sub-area 1.3: Academic autonomy

### Standard

1.3.1 The academic unit has a policy within which it has freedom to design the curriculum and allocate the resources necessary for its implementation.

### Analysis

The experts accept the statement of the unit in the self-evaluation report that “an independent curriculum design (within the boundaries set by the Swiss Catalogue of Learning Objectives and ETH qualification profiles) is principally given, that low administrative hurdles to curriculum modifications exist and that flexibility to complement internal teaching resources with external lecturers” is given.

The unit has already identified a shortcoming of the Bachelor curriculum in the self-evaluation report in that “Limited ability to control quality of service courses provided by other institutes/departments during the first two years of the Bachelor programme”. This limited influence leads to a high number of students failing during the first 2 years. More importantly, the numbers of courses in the third year are too high, which prevents most students of finishing their Bachelor in 3 years (only 20% finish after 3 years).

## Conclusions

### St. 1.3.1 partially fulfilled

**Recommendations:** It is highly recommended that teaching between first/second year should be better coordinated with the third year.

## Sub-area 1.4: Educational outcome

### Standards

1.4.1 The Swiss Catalogue of Learning Objectives for Training in Pharmacy according to the MedBG<sup>6</sup>, the academic unit defines the competencies to be achieved by students at the completion of their studies, necessary for their subsequent training and their future roles in the health care system.

1.4.2 Information concerning performance assessment and other data on the competence of the graduates will be used for the further development of the educational programme.

### Analysis

The Swiss Catalogue of Learning Objectives for Training in Pharmacy according to the MedBG<sup>7</sup>, the academic unit defines the competencies to be achieved by students at the completion of their studies, necessary for their subsequent training and their future roles in the health care system. The successful achievement of these objectives within the curriculum is ascertained through performance assessments for each individual lecture and laboratory course. This information will be used for the further development of the educational programme

However, the experts are not convinced that as stated in the self-evaluation report “This is in line with the general principles for Bachelor/Master study programmes according to the Bologna declaration.” The experts were surprised that only 20% of the students which have successfully passed the first and second year (roughly 50% of the students which enter the course) finish after 3 years. According to the Bologna declaration, the majority of students should be able to realize the bachelor degree within 3 years. At ETHZ roughly 50% finish after 4 and 30% after 5 years. Although 8 semesters on average might be usual to finish any BSc degree at the ETH Zürich, this does not argue for supporting this system. Instead, the experts see good opportunities to optimize the actual Pharmacy study course which will result in shorter study duration and maintaining a high quality standard at the same time.

### Conclusions

**St. 1.4.1 fulfilled**

**St. 1.4.2 partially fulfilled**

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<sup>6</sup> The Swiss Catalogue of Learning Objectives for Training in Pharmacy was accepted in consensus by the three Swiss sites for the pharmaceutical education (Basel, Zürich, Geneva) and submitted to the SFOP. It serves as basis for the federal pharmacy examinations according to the MedBG.

[www.bag.admin.ch/themen/berufe/00408/00557/index.html?lang=de](http://www.bag.admin.ch/themen/berufe/00408/00557/index.html?lang=de)

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[www.bag.admin.ch/themen/berufe/00408/00557/index.html?lang=de](http://www.bag.admin.ch/themen/berufe/00408/00557/index.html?lang=de)



**Recommendations:** Measures should be taken to guarantee that the majority of students can finish the Bachelor after 3 years.

## **Area 2: Study programme**

**Overall evaluation:** The programme is organized according to the Bachelor and Master curriculum, for the most parts in accordance with the guidelines of the Bologna Declaration. The pharmacy curriculum is aligned with the Swiss catalogue of learning objectives. The third year of the Bachelor programme is clearly overloaded. To deflate this year, some courses have to be placed in the first two year programme. Consequently, to avoid an overload of these two years, the number of credits attributed to basic sciences has to be reduced.

The curriculum committee includes several stakeholders, but intermediate staff is not adequately involved in the decisions and decisions finding. The collaboration and the coordination with the academics teaching the service courses are very poor.

### **Sub-area 2.1: Curriculum models and instructional methods**

#### **Standards**

2.1.1 The academic unit defines the curriculum models and the instructional methods.

2.1.2 The study programme and the instructional methods ensure that the students have responsibility for their own learning processes and are prepared for lifelong, self-directed learning.

#### **Analysis**

The experts recognize that the academic unit has organized the Bachelor and Master curriculum as stated in the self-evaluation report „In accordance with the guidelines of 1999 the Bologna Declaration of the European Ministers for Education, the overall study programme is divided into a Bachelor programme and a Master programme, which are designed for a minimum duration of 3 and 2 years, respectively.”

It is apparent that the academic unit defines curriculum models and instructional methods for the 3<sup>rd</sup> year Bachelor and the Master course, but apparently not for the 1<sup>st</sup> and 2<sup>nd</sup> year Bachelor, which is under the leadership of departments and units outside the IPW.

The experts were not convinced that the study programme and the instructional methods ensure that the students have responsibility for their own learning processes and are prepared for lifelong, self-directed learning. The curriculum is highly organised and does not provide much freedom.

#### **Conclusions**

### **St. 2.1.1 partially fulfilled**

**Recommendations:** IPW has to take the leadership and a higher responsibility for the 1<sup>st</sup> and 2<sup>nd</sup> year Bachelor and integrate it with 3<sup>rd</sup> year education.

### **St. 2.1.2 partially fulfilled**

#### **Recommendations**

Provide opportunities for students that they have responsibility for their own learning processes and are prepared for lifelong, self-directed learning.

## **Sub-area 2.2: Structure, Composition and duration of the study programme**

### **Standards**

2.2.1 The academic unit describes and defines the contents, extent, and sequencing of the study programme elements, including the balance between core and optional content.

2.2.2 The study programme is based on the goals of the Swiss Catalogue of Learning Objectives in Pharmacy according to the MedBG.

2.2.3 Basic natural and biomedical sciences, pharmaceutical and clinical sciences and Public health are integrated in the study programme as well as the interface with complementary therapies.

### **Analysis**

The academic unit describes but only partly defines the contents, extent, and sequencing of the study programme elements, including the balance between core and optional content. The study programme is based on the goals of the Swiss Catalogue of Learning Objectives in Pharmacy according to the MedBG. Basic natural and biomedical sciences, pharmaceutical and clinical sciences and Public health are integrated in the study programme as well as the interface with complementary therapies

Under 1.3.1 the experts stated: The academic unit has already identified in the self-evaluation report a shortcoming of the Bachelor curriculum in that "Limited ability to control quality of service courses provided by other institutes/departments during the first two years of the Bachelor programme". This limited influence coincides to a high number of students failing during the first 2 years. Basic Natural Sciences largely dominate in the 1<sup>st</sup> and 2<sup>nd</sup> year. More importantly, the numbers of courses in the third year are too high, which prevents most students of finishing their Bachelor in 3 years. The experts are of the opinion that teaching between first/second year should be better coordinated with the third year. The experts realized that credit points not always correlated with the time requirement of students needing in a particular course. E.g. some courses with only 1 or 2 credit points had an examination which required students to prepare themselves for 1-2 weeks. In addition, the high number of courses respectively exams, many of which have less than 5 credit points,

hinders interdisciplinary learning. In contrast, the number of elective courses is very limited, especially within the bachelor programme.

The pharmaceutical courses are concentrated in the 3<sup>rd</sup> year of the Bachelor. This leads to an extreme density of courses and examinations in the 3<sup>rd</sup> year, which forms an obstacle for students to finish the Bachelor in 3 years.

## Conclusions

### St. 2.2.1 not fulfilled

#### Condition 1:

The academic unit needs to define Modules (or module-like elements or “strukturierte thematische Einheiten”) which comprise courses of related contents. Each Module (or module-like element or “strukturierte thematische Einheit”) should have a responsible person who knows the teaching content and teaching load of the courses within a module.

**Time:** This must be operative within 2 years after accreditation decision.

**Recommendations:** The responsible person of each module should come from the IPW and must also coordinate the contents with departments and units teaching basic natural sciences (chemistry, biology, mathematics and physics). Teaching loads of a module should be in accordance to the ECTS-points allocated to each module, i.e. 1 credit point is equivalent to 25-30 hours (attendance and private learning). The number of examinations should be restricted to one per module (at most). Each module (or module-like element or “strukturierte thematische Einheit”) should contain at least 5 credit points of workload.

### St. 2.2.2 fulfilled

### St. 2.2.3 partially fulfilled

**Recommendations:** The global volume of fundamental sciences has to be reduced in the first two years of the Bachelor course. This will give time to displace courses from the third year which is clearly overloaded. In addition, some advanced natural sciences could be, at least partially, taught by teachers from the Pharmacy Department (IPW) in order to focus on relevant topics for future pharmacists.

## Sub-area 2.3: Study programme management

### Standards

2.3.1 A curriculum committee<sup>8</sup> has the responsibility for the planning and implementation of

<sup>8</sup> cf. SUK-Guidelines Art. 10, 2.03. The curriculum committee is of central importance to quality assurance of the study programme.

the study programme.

2.3.2 The curriculum committee has appropriate resources for the choice and implementation of appropriate teaching and learning methods, evaluation of students, evaluation of programme, and innovations in the study programme. The administration, academic staff, students, and other stakeholders are represented in the curriculum committee.

### **Analysis**

The experts accept the statement of the academic unit in the self-evaluation report that „Study programme management is in place and involves most pertinent stakeholders. Sufficient resources are available for the planning and implementation of appropriate methods of teaching and learning, student assessment, course evaluation, and for innovations in the study programme; this includes resources from the Rector’s staff unit “Teaching Development and Technology” (Lehrentwicklung und -technologie, LET).Dedicated and strong leadership for pharmaceutical practice-oriented second year of Master programme.”

The experts discovered that an important group of academic teachers and assistants (Oberassistenten, Privatdozenten), which have a wide teaching experience, are not member of the curriculum committee.

### **Conclusions**

**St. 2.3.1 fulfilled**

**St. 2.3.2 partially fulfilled**

**Recommendations:** All persons responsible of teaching modules (including those of departments and units teaching in basic natural sciences) should be member or guest in the curriculum committee. Furthermore, take measures to ensure that experienced academic teachers (e.g. Oberassistenten, Privatdozenten, Apl. Professors) are members of the curriculum committee.

## **Sub-area 2.4: Scientific methods**

### **Standard**

2.4.1 The academic unit teaches the principles of scientific methods and evidence-based medicine, including analytical and critical thinking, throughout the entire study programme.

### **Analysis**

The academic unit apparently teaches the principles of scientific methods and evidence-based medicine, including analytical and critical thinking, throughout the entire study programme.

#### **Conclusions**

**St. 2.4.1 fulfilled**

### **Sub-area 2.5: Basic natural and biomedical sciences**

#### **Standards**

2.5.1 The academic unit identifies the contributions of the basic natural and biomedical sciences, and integrates them into the study programme.

2.5.2 The contributions of natural and biomedical sciences are adapted to scientific, technological, and clinical developments, as well as to the health needs of society.

#### **Analysis**

The teaching of 1<sup>st</sup> and 2<sup>nd</sup> year of the Bachelor is dominated by Chemistry, Physics, Mathematics and Biology and is apparently independent from the teaching in the 3<sup>rd</sup> year. The academic unit (IPW) is neither involved in the identification nor in the adaptation of scientific or technological developments in natural and biomedical sciences into the study programme. A total work load equivalent to 26 credit points in mathematics, physics and computer sciences is inappropriately high in comparison to pharmacy-specific courses and lectures, e.g. within pharmacology and toxicology. This unbalanced distribution leads to an extreme density of pharmaceutical courses and lectures (including examinations) in 3<sup>rd</sup> year.

#### **Conclusions**

**St. 2.5.1 fulfilled**

**St. 2.5.2 not fulfilled**

#### **Condition 2:**

Members of the academic unit (IPW) must be actively involved in the process of identification of the contributions of the basic natural and biomedical sciences, so that the needs of pharmacy students can be integrated into the 1<sup>st</sup>, and the 2<sup>nd</sup> year of the Bachelor programme.

**Time:** This must be operative within 2 years after accreditation decision.

### **Sub-area 2.6: Behavioural and social sciences, medical ethics**

#### **Standards**

2.6.1 The academic unit identifies the contributions of behavioural and social sciences, medical ethics, educational sciences, and the legal and economic basis of health care that enable effective communication, clinical decision-making, and ethical practices. This is integrated into the study programme.

2.6.2 The contributions of behavioural and social sciences, medical ethics and humanities are adapted to scientific developments in pharmacy, to changing demographic and cultural contexts, and to the health needs of society.

### **Analysis**

The experts partly agree with the statement of the academic unit in the self-evaluation report that „Adequate implementation of behavioural and social sciences and ethics is provided and that ethical practices are taught in various contexts and by various health care professionals”. The curriculum is already so densely packed that hardly no time exists to fully implement behavioural and social sciences, medical ethics, educational sciences, and the legal and economic basis of health care that enable effective communication, clinical decision-making, and ethical practices. The experts feel that these topics mentioned in 2.6.1 should be intensified and be better visible.

### **Conclusions**

#### **St. 2.6.1 partially fulfilled**

**Recommendations:** Reorganize the curriculum so that behavioural and social sciences, medical ethics, educational sciences, and the legal and economic basis of health care that enable effective communication, clinical decision-making, and ethical practices can be intensified and become better visible.

#### **St. 2.6.2 partially fulfilled**

**Same Recommendation as for 2.6.1**

### **Sub-area 2.7: Clinical knowledge and skills**

#### **Standard**

2.7.1 The academic unit assures that the students have patient contact appropriate to their level of education and have acquired sufficient pharmaceutical and clinical knowledge and skills, so that after graduation they can assume appropriate responsibility.

### **Analysis**

The experts partly agree with the statement of the academic unit in the self-evaluation report that “A significant part of the educational programme takes place in an environment where students have close contacts with patients and in settings of primary care.” For pharmacists it is essential that they have contact to patients and medical professionals. Such

opportunities exist in the 2<sup>nd</sup> year of the Master. In the master, the opportunities of contact, discussion with medical professionals are weak as compared to Pharmacy curricula at other universities. In comparison to the 1<sup>st</sup> and 2<sup>nd</sup> year of the bachelor programme, where the pharmacy students spent a lot of time together with students of other natural sciences, the contact with medical professionals during the master programme is very limited. Joint practical (clinical) courses with medical students have not been identified by the experts.

## **Conclusions**

### **St. 2.7.1 partially fulfilled**

**Recommendations:** Provide better opportunities for Master students to have contact to patients, medical professionals and medical students. It could be interesting for the pharmaceutical students to collaborate with medical students during their curriculum in order to improve their further collaboration as major actors of the healthcare system.

## **Sub-area 2.8: Linkage with pharmaceutical practice and the health care system**

### **Standards**

- 2.8.1 The content based, competency based and operational link between the study programme, postgraduate education, and independent professional practice is assured.
- 2.8.2 The curriculum committee uses information from the professional field, the health care system, and society to improve the study programme.

### **Analysis**

The 2<sup>nd</sup> year of the Master programme is adequately designed to serve the standards of 2.8. Continuous coordination with the Swiss-wide Platform Pharmaceutical Education (PAP) is running to improve the program. This platform represents the three Swiss pharmacy schools, professional pharmacists organisations and the Federal Office of Public Health.

## **Conclusions**

### **St. 2.8.1 fulfilled**

### **St. 2.8.2 fulfilled**

## **Area 3: Students**

**Overall evaluation:** No Numerus Clausus or selection process is applied at ETHZ, neither in other Swiss universities for admission in the pharmacy programme. As a probable consequence, the majority of students (>50%) needs 4 or 5 years to reach the 3-year bachelor degree. ETHZ provides a counselling service, but no tutorial system exists.

Students are represented in several organisations. The lack of time due to an overloaded programme represents a hurdle to a more pronounced involvement in student affairs.

### **Sub-area 3.1: Admission policy and selection process**

#### **Standards**

3.1.1 The governing body and the academic unit have formulated admission conditions that clearly explain the student selection process.

3.1.2 Gender equality is guaranteed.

#### **Analysis**

The experts noticed that there is no selection process at ETHZ for admission to the students; apparently examinations after the 1<sup>st</sup> and 2<sup>nd</sup> year act as a filter to reduce student numbers. This creates a heavy burden on the program, both from the large number of first-year students and from the necessity to create a selective first year of the study, with its inherent consequences of competition and stress for the new students. The experts noticed that this is part of the ETHZ/Swiss policy, but would like to mention that in many other countries the number of pharmacy students is regulated by a Numerus Clausus, so that only the best students are admitted to the course.

Gender equality is guaranteed.

#### **Conclusions**

**St. 3.1.1 fulfilled**

#### **Recommendations:**

Consider talks with the Canton leadership about the way the selection (admission) process could be modified. Consider methods of providing advice and additional support to the large first-year classes.

**St. 3.1.2 fulfilled**

### **Sub-area 3.2: Number of students**

#### **Standard**

3.2.1 In all phases of the study programme, the number of students is in accordance with the capacity of the academic unit.

#### **Analysis**



The experts agree with the statement of the academic unit in the self-evaluation report that there is a potential “Decline in teaching quality due to insufficient capacities for the teaching of laboratory courses, for research and master projects; erosion of learning outcomes” if student numbers, which increase over the years, cannot be accommodated. Existing teaching labs and teaching personnel have a given capacity, which can cope with the present number of students. In case student numbers increase in the coming years, a potential conflict could occur.

### **Conclusions**

#### **St. 3.2.1 fulfilled**

**Recommendation:** Introduce a Numerus Clausus which is orientated at the number of students which can adequately be accommodated given restrictions in laboratory space and personnel.

### **Sub-area 3.3: Student support and counselling**

#### **Standards**

- 3.3.1 The academic unit offers support and counselling services for the students.
- 3.3.2 The counselling services takes the learning progress and their social and personal needs into account.
- 3.3.3 Students have access to a gender equality commission.

#### **Analysis**

A counselling service is offered by ETHZ and the department.

The experts could see from student statistics that less than 50% of the students which enter the Bachelor programme finalize the programme. However, a tutorial system does not exist for students which could help students with a weaker background in Natural Sciences to cope with the demands at ETHZ in the first and second year.

Students have access to a gender equality commission.

#### **Conclusions**

#### **St. 3.3.1 partially fulfilled**

**Recommendations:** Introduce a tutorial system for students, especially in the 1<sup>st</sup> and 2<sup>nd</sup> year, to overcome shortcomings from the previous education at high school.

#### **St. 3.3.2 fulfilled**

#### **St. 3.3.3 fulfilled**

### **Sub-area 3.4: Student representation**

#### **Standards**

- 3.4.1 The academic unit settles the representation and appropriate participation of the students in the design, implementation, and evaluation of the study programme, as well as in other matters relevant to the students.
- 3.4.2 Student organisations are promoted.

### **Analysis**

The experts accept the statement in the self-evaluation report that “Well established representation of the students exist in the bodies of the department”, and that “Well organized student associations exist.” However, the experts learned from the students that the time demands for courses, lectures and exams are so high, that students hardly find time to engage in student affairs.

### **Conclusions**

**St. 3.4.1 fulfilled**

**St. 3.4.2 partially fulfilled**

**Recommendations:** Reduce the weekly time of mandatory teaching (courses, lectures) in such a way that students who want to be involved in student affairs find time to be more involved in them.

## **Area 4: Assessment of students**

**Overall evaluation:** A wide variety of assessment methods are employed for performance assessments, and they are clearly communicated to the students except for the practical courses for which clear guidelines are missing. The assessment of the student performance is in line with the training objectives and integrates the practical aspects. The number of examinations per semester is too high.

### **Sub-area 4.1: Assessment methods**

#### **Standards**

- 4.1.1 The academic unit defines and communicates the methods for the assessment of students.
- 4.1.2 The reliability and validity of the assessment methods are documented and evaluated and new assessment methods developed.

### **Analysis**

The academic unit defines and communicates the methods for the assessment of students. The experts agree with the statement of the academic unit in the self-evaluation report that

„Large variety of assessment modes are employed for performance assessments and that freedom in the implementation of new assessment methods exist.“ However, the experts also realized, that “no systematic evaluation of the reliability and validity of assessment methods” exist.

The experts missed a clear guideline for the evaluation of practical courses; apparently it is up to the judgement of individual teaching assistants if and when a course has been passed successfully by a student.

### **Conclusions**

**St. 4.1.1 fulfilled**

**St. 4.1.2 partially fulfilled**

**Recommendations:** Publish guidelines for the evaluation of each theoretical and practical examination, and make them known to all persons involved in teaching (also external service departments).

## **Sub-area 4.2: Relationship between assessment and learning**

### **Standards**

4.2.1 Assessment principles, methods and practices correspond to teaching and learning objectives and promote learning.

4.2.2 The number and type of examinations encourage integrated and interdisciplinary learning.

### **Analysis**

The experts only partially agree with the statement of the academic unit in the self-evaluation report that „Assessment of student performance is in line with training objectives and that a good integration of practical aspects exists and communication and presentation skills are assessed in different courses at different levels“. The experts have a major concern, that the large number of performance assessments clearly negatively impacts learning outcome and does not encourage integrated and interdisciplinary learning.

### **Conclusions**

**St. 4.2.1 partially fulfilled**

### **Recommendations:**

Prepare Module exams that assess mainly student’s ability to apply and integrate knowledge and skills within and across topics. Reduce the number of assessments.

**St. 4.2.2 not fulfilled**

### **Condition 3**

Reduce the number of examinations by having integrated exams for modules (or module-like elements or “strukturierte thematische Einheiten”) instead of individual exams for each course or lecture. Guarantee that time required for the preparation for exams is in agreement with ECTS credit points. Members of the academic unit (IPW) must be actively involved in the organization of the number and kind of examinations within the whole Pharmacy study programme.

**Time:** The examination system must be changed within 2 years since accreditation decision.

### **Area 5: Academic staff/faculty**

**Overall evaluation:** The ETHZ recruitment policy is excellent and takes mainly into account the scientific excellence of the candidates. It seems that the “pharmaceutical background” of applicants is not enough considered. The postdocs are underemployed in teaching and the intermediate staff is not sufficiently integrated in teaching and in the programme management.

#### **Sub-area 5.1: Recruitment policy**

##### **Standards**

- 5.1.1 The academic unit has a staff recruitment policy, which defines the academic staff required for the adequate implementation of a high qualitative and well organised programme. It takes into account the balance between academic, technical and administrative staff, as well as between full and part-time employees. Responsibilities are clearly defined and periodically examined.
- 5.1.2 The academic unit has formulated staff selection criteria, which take into account performance in science, teaching and clinical activities, as well as the demands of the mission statement of the institution, economic considerations, and further issues.
- 5.1.3 The recruitment policy for academic, administrative, and technical personnel is published.

##### **Analysis**

The academic unit has a staff recruitment policy, which defines the academic staff required for the adequate implementation of a high qualitative and well organised programme. It takes into account the balance between academic, technical and administrative staff. Recruitment policy at ETHZ is excellent and ensures that ETHZ is one of the best universities in Europe. The staff recruitment policy is well balanced. Indeed, the experts did not received claims about work overload or undefined job description.

The experts recognize the high scientific level of recruited teachers. They recognize that the teaching ability of the candidate is an important criterion, but the experts are not convinced that these qualities particularly in the pharmaceutical field are sufficiently taken into account.

Thus, there can be a conflict between scientific excellence and teaching competence especially in a subject such as Pharmacy.

The recruitment policy for academic, administrative, and technical personnel is published.

## **Conclusions**

**St. 5.1.1 fulfilled**

**St. 5.1.2 fulfilled**

**St. 5.1.3 fulfilled**

## **Sub-area 5.2: Staff policy and development**

### **Standards**

5.2.1 With its staff policy, the academic unit strives for a balance in teaching, research, and service functions, and ensures recognition of meritorious academic activities with appropriate emphasis on both, research attainment and teaching qualifications.

5.2.2 The staff policy includes training, development, and assessment of the teaching staff. It considers teacher-student ratios appropriate to the various components of the study programme, and assures that teaching staff is represented on relevant committees and bodies.

5.2.3 The staff has access to a gender equality commission.

5.2.4 The academic unit supports a long-term promotion of young academic staff.

5.2.5 The staff has access to continuing education, career development opportunities, and appropriate counselling.

### **Analysis**

The experts accept the statement of the academic unit in the self-evaluation report that „Clearly defined staff policy, based on research and teaching goals exist. And that multiple instruments recognize excellence in research and teaching.”

Some members of the “Mittelbau” such as Oberassistenten and Apl. Professors are not members of the “Unterrichtskommission”.

The staff has access to the “Office for Equal Opportunities of Men and Women”. No problems or claims were reported to the experts about this topic.

The experts were disappointed that the approximately 30 Postdocs of the department were not involved in teaching and that a concept for long-term promotion of them was not evident.

The staff has access to continuing education, career development opportunities, and appropriate counselling.

### **Conclusions**

#### **St. 5.2.1 fulfilled**

#### **St. 5.2.2 partially fulfilled**

**Recommendations:** Take care that the academic "Mittelbau" (Oberassistenten etc) are better integrated into decision processes (e.g. in the Unterrichtskommission) in teaching matters.

#### **St. 5.2.3 fulfilled**

#### **St. 5.2.4 partially fulfilled**

**Recommendations:** Provide a career concept for Postdocs which includes teaching responsibilities (which are helpful to them in their future careers).

#### **St. 5.2.5 fulfilled**

### **Area 6: Educational resources**

**Overall evaluation:** The infrastructure, especially for practical courses, is "generous and modern". A large practical training in community and hospital pharmacies is included in the programme. Close and integrated contacts between students with medical professional, and with patients are not sufficient. This lack of deep cooperation is probably due to the absence of medical professionals at the ETHZ who are housed at the University of Zurich where the medicine curriculum is taught. Research at the Department of Pharmacy reaches an excellent and international level. The regional and international mobility is too low for ETHZ students, which is due to an overloaded curriculum, and the absence of a policy in the credit point transfer.

#### **Sub-area 6.1: Infrastructure**

##### **Standards**

6.1.1 The academic unit provides an appropriate infrastructure to ensure that the study programme can be adequately implemented.

6.1.2 The learning environment for the students is regularly adapted to developments in education.

##### **Analysis**

The academic unit provides an appropriate infrastructure to ensure that the study programme can be adequately implemented. The experts agree with the statement of the academic unit in the self-evaluation report that „Generous and modern infrastructure is provided by ETHZ and that there is excellent access to scientific information.”

The learning environment for the students is regularly adapted to developments in education.

**Conclusions**

**St. 6.1.1 fulfilled**

**St. 6.1.2 fulfilled**

**Sub-area 6.2: Practical pharmaceutical training resources**

**Standard**

6.2.1 The academic unit provides access to the necessary resources and training facilities for adequate practical education.

**Analysis**

The experts agree with the statement of the academic unit in the self-evaluation report that „Extensive practical training in community and hospital pharmacies“ is provided. However, the experts missed a better integration into clinical pharmacy and adequate contact of students with patients and medical professionals.

The experts also regret that places for the optional hospital training (10 weeks in last year) are very limited, and the activity there are not enough clinically orientated.

They are too few opportunities for practical training in hospital pharmacy and clinical pharmacy. This is probably due to weak relations between ETHZ with the university hospital caused by a separated site locations.

**Conclusions**

**St. 6.2.1 partially fulfilled**

**Recommendations:** Provide a better integration of students into clinical pharmacy and allow adequate contact with patients and medical professionals.

**Sub-area 6.3: Information Technology**

**Standard**

6.3.1 The academic unit has a policy for the efficient use of information and communication technologies in its study programme. Teachers and students are enabled to use information and communication technology for their self-learning, accessing information, and working in the health care systems.

## **Analysis**

The experts accept the statement of the academic unit in the self-evaluation report that „information technology is fully integrated in the study programme and used daily by most students and that the available technology is of the highest standards and well supported by IT and scientific/educational information experts.” ETHZ is outstanding in this respect.

## **Conclusions**

**St. 6.3.1 fulfilled**

### **Sub-area 6.4: Research**

#### **Standards**

6.4.1 The academic unit has a policy describing the research facilities and areas of research priorities at the institution, as well as the relationship between research and teaching.

6.4.2 The interrelationship between research and teaching is reflected in the study programme and in the current course offerings. The students are encouraged and prepared to participate in pharmaceutical research and development.

## **Analysis**

Scientific research at ETHZ and in the Department of Pharmacy is excellent and is an important asset to provide a modern education in pharmacy. The high scientific standard guarantees a highly academic training of future pharmacists which is reflected by the large number of former students taking a PhD and later working in Academia or industry.

## **Conclusions**

**St. 6.4.1 fulfilled**

**St. 6.4.2 fulfilled**

### **Sub-area 6.5: Educational expertise**

#### **Standard**

6.5.1 The academic unit includes educational expertise when planning pharmaceutical education and developing teaching, learning and assessment methods.

## **Analysis**

The academic unit includes educational expertise when planning pharmaceutical education and developing teaching, learning and assessment methods. Educational expertise is



evident at all levels at ETHZ. However, improvement of teaching skills through interactions with educational experts is not sufficiently encouraged. Because the IPW tries to engage professors with a strong academic profile, not all of them have a thorough training in pharmacy. This is not a negative decision, as long as the majority of professors and personnel from the "Mittelbau" can offer a broad education of pharmaceutical topics.

## **Conclusions**

### **St. 6.5.1 partially fulfilled**

**Recommendations:** Make sure that enough teachers with a background in Pharmacy are included in the Department to guarantee adequate representation of pharmacy-related knowledge. All IPW faculty members and teaching staff, especially young scientists should be engaged on a regular basis in educational expertise courses provided by the LET.

## **Sub-area 6.6: Cooperation**

### **Standards**

- 6.6.1 The academic unit has formulated a policy for cooperation with other educational institutions and the transfer of educational credit points.
- 6.6.2. Regional and international exchange of academic staff and students is facilitated by the provision of appropriate resources.

### **Analysis**

The experts were surprised that pharmacy students at ETHZ hardly take part in mobility programs, such as ERASMUS. Thus one of the aims of the Bologna reform to encourage mobility is not met. The experts learned that students would like to go abroad but that the study course at ETHZ does not provide any freedom unless students accept to lose a year. A cooperation of pharmacy students from ETHZ with the Universities of Basel and Geneva within the respective pharmacy study programmes is possible but not encouraged.

A better coordination of the study programmes of the three Swiss institutes of pharmacy would facilitate the student exchanges between them. More flexibility from the ETHZ on this point would encourage students to go abroad.

## **Conclusions**

### **St. 6.6.1 partially fulfilled**

**Recommendations:** Formulate a policy for cooperation with other educational institutions and the transfer of educational credit points.

### **St. 6.6.2 partially fulfilled**

**Recommendations:** Facilitate and encourage regional and international exchange of students.

## **Area 7: Programme evaluation**

**Overall evaluation:** The IPW in combination with the Rectorate of the ETHZ has almost ideal quality assurance mechanisms that monitor the study programme and student progress, and ensure that weaknesses are identified and addressed. In addition to some aspects mentioned before (work load, modules), the (non)involvement of the intermediate staff in decision making processes should be addressed.

### **Sub-area 7.1: Study programme evaluation**

#### **Standards**

- 7.1.1 The academic unit has quality assurance mechanisms (i.e. evaluations) that monitor the study programme and student progress, and ensure that weaknesses are identified and addressed.
- 7.1.2 Study programme evaluation includes the context of the educational process, the specific components of the study programme, and the learning outcomes.

#### **Analysis**

The academic unit has quality assurance mechanisms (i.e. evaluations) that monitor the study programme and student progress, and ensure that weaknesses are identified and addressed. Study programme evaluation includes the context of the educational process, the specific components of the study programme, and the learning outcomes.

The IPW in combination with the Rectorate of the ETHZ has almost ideal quality assurance mechanisms that monitor the study programme and student progress, and ensure that weaknesses are identified and addressed.

#### **Conclusions**

**St. 7.1.1 fulfilled**

**St. 7.1.2 fulfilled**

### **Sub-area 7.2: Teacher and student feedback**

#### **Standards**

- 7.2.1 Feedback from both teachers and students is systematically collected, analysed, and used to continually improve the study programme.
- 7.2.2 Teachers and students are to be actively involved in planning the study programme evaluation and using its results for programme development.

#### **Analysis**

The experts accept the statement of the academic unit in the self-evaluation report that „Systematic collection of student feedback on course quality and other programme-related issues is given. That the curriculum committee provides a defined platform for the collection of student feedback beyond the regular course evaluation and exchange of feedback between students and teachers and that a clearly defined process for the assessment of the results of course evaluations and possible measures to remedy weaknesses” are provided.

Feedback from teachers is not collected. Teachers and students are actively involved in planning the study programme evaluation and using its results for programme development.

### **Conclusions**

**St. 7.2.1 fulfilled**

**St. 7.2.2 fulfilled**

### **Sub-area 7.3: Student performance**

<b>Standard</b>
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7.3.1 Student performance is analysed in relation to the mission, objectives, and study programme of the academic unit, and brought to the attention of the curriculum committee.
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### **Analysis**

Student performance is analysed in relation to the mission, objectives, and study programme of the academic unit, and brought to the attention of the curriculum committee. The experts are aware that the curriculum committee is working very well, but has not taken action against some of the problems outlined in previous points. The experts have noticed that the curriculum is obviously overloaded, which can lead to an impairment of student performance in a global point of view (personal development). Apparently students have more or less attendance 40 hours per week in addition to the home work which includes preparation and learning of lessons and report writing.

### **Conclusions**

**St. 7.3.1 partially fulfilled**

**Recommendations:** Action is required against the overload of both attendance and learning time, at least one of them should be reduced. Theoretically students should spend 20-30 h during a week at the university and 20 h at home for individual learning.

### **Sub-area 7.4: Involvement of stakeholders**

<b>Standard</b>
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7.4.1 The processes and outcome of study programme evaluation involve the governance and administration of the academic unit, academic staff and students, and take into consideration feedback from additional stakeholders.

### **Analysis**

Feedback from most relevant stakeholders is considered in the processes and outcome evaluation of the study programme. The experts learned however during the on-site-visit that at least some of the teachers from the “Mittelbau” are underrepresented in the process.

### **Conclusions**

**St. 7.4.1 partially fulfilled**

**Recommendations:** See Recommendations for St. 5.2.2.

## **Area 8: Governance and administration**

**Overall evaluation:** Governance structures are implemented at each level. The control of the first two years Bachelor programme by the Department of Pharmacy is very poor. It seems that the management of these two years is disclosed with that of the third year and the master programme. The real involvement of the intermediate staff within the governance structures is weak. The administrative support is adequate as well as the educational budget which is excellent. In the master programme, interactions with the health sector are developed but not so visible.

### **Sub-area 8.1: Governance structures and functions**

#### **Standards**

- 8.1.1 Governance structures of the academic unit and their functions are defined, including their relationship within the university and to other academic institutions.
- 8.1.2 The academic unit has a strategic plan.
- 8.1.3 The academic staff participates in decision-making processes concerning teaching and research.
- 8.1.4 Decision-making processes, competencies, and responsibilities are communicated to all participants.

### **Analysis**

Governance structures of the academic unit and their functions are defined, including their relationship within the university and to other academic institutions. The academic unit has a strategic plan.

The academic staff participates in decision-making processes concerning teaching and research

Decision-making processes, competencies, and responsibilities are communicated to all participants.

Therefore the experts can state that governance and administration structures within ETHZ and the Pharmacy Department (IPW) in general are very good.

### **Conclusions**

**St. 8.1.1 fulfilled**

**St. 8.1.2 fulfilled**

**St. 8.1.3 fulfilled**

**St. 8.1.4 fulfilled**

### **Sub-area 8.2: Academic leadership**

#### **Standards**

8.2.1 The responsibilities of the academic leadership of the academic unit for the study programme are clearly stated.

8.2.2 The academic leadership is periodically assessed with regard to the fulfilment of the mission and objectives of the academic unit.

#### **Analysis**

The experts realized that one of the major shortcomings of the Bachelor is that the first 2 years of the study programme are outside the responsibility of the Pharmacy Department (IPW). The Department apparently has no or limited influence on content or size of the teaching in Biology, Chemistry, Physics and Mathematics. Members of the IPW could not identify major characteristics (content of practical courses, responsible academic staff at the other departments, examinations) of the first two years of the bachelor study programme. The experts realized that as a results of this, the pharmacy students start in their third year at a very basic level in the student lab courses (instead of being trained in e.g. pharmaceutical analytics or bioinformatics).

#### **Conclusions**

**St. 8.2.1 not fulfilled**

#### **Conditions 4:**

**See Condition 1 (St. 2.2.1), Condition 2 (St. 2.5.2)**

**See Recommendations for St. 2.2.1**

**St. 8.2.2 partially fulfilled**

**See Recommendations for St. 2.2.1**

### **Sub-area 8.3: Administrative staff**

#### **Standard**

8.3.1 The academic unit has sufficient administrative personnel. This ensures the organisational implementation of the study programme and other activities, and guarantees efficient resource management.

#### **Analysis**

The experts recognize that the administration is well organized and adequately staffed. This ensures the organisational implementation of the study programme and other activities, and guarantees efficient resource management.

#### **Conclusions**

**St. 8.3.1 fulfilled**

### **Sub-area 8.4: Educational budget and resource management**

#### **Standards**

8.4.1 The academic unit has clear authority and responsibility for the study programme and its financing. This includes a dedicated educational budget.

8.4.2 The academic unit has sufficient autonomy to direct resources, including the remuneration of teaching staff, in order to achieve the overall objectives of the academic unit.

8.4.3 The financial sources and all conditions linked to financing are transparent, and do not hinder the autonomy of the academic unit to make decisions concerning teaching and research.

#### **Analysis**

The academic unit has clear authority and responsibility for the study programme and its financing. This includes a dedicated educational budget.

The academic unit has sufficient autonomy to direct resources, including the remuneration of teaching staff, in order to achieve the overall objectives of the academic unit.

The financial sources and all conditions linked to financing are transparent, and do not hinder the autonomy of the academic unit to make decisions concerning teaching and research.

### **Conclusions**

**St. 8.4.1 fulfilled**

**St. 8.4.2 fulfilled**

**St. 8.4.3 fulfilled**

### **Sub-area 8.5: Interactions with the health sector**

#### **Standard**

8.5.1 The academic unit collaborates with the health and health related sectors of society and government.

#### **Analysis**

The academic unit collaborates with the health and health related sectors of society and government. In the Master Programme an adequate interaction with the health sector becomes especially evident.

**St. 8.5.1 fulfilled**

### **Area 9: Continuous renewal/quality assurance**

**Overall evaluation:** The ETHZ has a centralized quality assurance system. The mission statement and objectives of the ETHZ and the IPW are periodically reviewed, and the feedback is used for the strategic planning process.

#### **Standard**

9.1.1 The academic unit and institution implement procedures for the periodic reviewing and updating of its structure and functions, and rectify documented deficiencies.

#### **Analysis**

The ETH Zürich has a centralized and homogeneous quality assurance system for all of its 17 departments and 39 study programmes.

### **Conclusions**

### **St. 9.1.1 fulfilled**

## **4 Compliance with the art. 24 para. 1 a and b MedBG**

### **Art. 24 Studiengänge**

The pharmacy study programme of the ETHZ complies with art. 24 para. 1 a and b MedBG.

## **5 Strengths, weaknesses, recommendations on quality improvement**

**Strengths:** An excellent infrastructure exists at ETHZ. This university provides an almost ideal research environment with many internationally recognized professors, which guarantee a high reputation of research. The MSc course is mostly well organised and structured.

The professors, lecturers and teachers involved in the Pharmacy study courses are highly motivated. This applies to the members of the different Departments of the ETH Zürich, and especially to the members of the IPW.

**Weakness:** The present BSc suffers from an overloaded study programme. The 1<sup>st</sup> and 2<sup>nd</sup> year has not been adjusted for pharmacy students. The 3<sup>rd</sup> year combines lectures and practicals in a single year for which other pharmaceutical curricula, e.g. in Germany, allocate 2 years. One of the consequences is that more than 50% of the students fail and only a fraction of the successful students finish their BSc after 3 years. Furthermore, hardly no exchange programmes for students are possible and no policy for the transfer of credit points has been established. Almost no election courses within the pharmacy study programme (especially within the Bachelor study programme) exist. Pharmacy students have not sufficient contact with the Faculty of Medicine and medical professionals.

**Opportunities:** The accreditation offers the chance to reorganize and optimize an established Bachelor and Master programme. A stronger involvement of IPW members in organization and quality assurance throughout the whole study programme will result in a more pharmacy-related high quality study programme.

**Threats:** If teaching at ETHZ does not comply with Bologna standards excellent students might choose to enrol in other universities.

Also, the overloaded curriculum during the bachelor can finally lead to a loss of student's performance and creativity.

## **6 Comprehensive list of recommendations and conditions**

CONDITION 1:

**St. 2.2.1 and St. 8.2.1 not fulfilled.**



The academic unit needs to define Modules (or module-like elements or “strukturierte thematische Einheiten”) which comprise courses of related contents. Each Module (or module-like element or “strukturierte thematische Einheit”) should have a responsible person who knows the teaching content and teaching load of the courses within a module.

**Time:** This must be operative within 2 years after accreditation decision.

#### CONDITION 2:

##### **St. 2.5.2 and 8.2.1 not fulfilled**

Members of the academic unit (IPW) must be actively involved in the process of identification of the contributions of the basic natural and biomedical sciences, so that the needs of pharmacy students can be integrated into the 1<sup>st</sup>, and the 2<sup>nd</sup> year of the Bachelor programme.

**Time:** This must be operative within 2 years after accreditation decision.

#### CONDITION 3

##### **St. 4.2.2 not fulfilled**

Reduce the number of examinations by having integrated exams for modules (or module-like elements or “strukturierte thematische Einheiten”) instead of individual exams for each course or lecture. Guarantee that time required for the preparation for exams is in agreement with ECTS credit points. Members of the academic unit (IPW) must be actively involved in the organization of the number and kind of examinations within the whole Pharmacy study programme.

**Time:** The examination system must be changed within 2 years since accreditation decision.

#### RECOMMENDATION 1

**St. 1.2.1 fulfilled. Recommendations:** In the bachelor course a better coordination between service units outside the IPW (Chemistry, Biology, Mathematics, Physics) which teach the first and second year with the faculty and staff members of the IPW teaching the third year is recommended to avoid overlap and to focus the first and second year contents better on the demands of the pharmacy students.

#### RECOMMENDATION 2

**St. 1.3.1 partially fulfilled. Recommendations:** It is highly recommended that teaching between first/second year should be better coordinated with the third year.

#### RECOMMENDATION 3

**St. 1.4.2 partially fulfilled. Recommendations:** Measures should be taken to guarantee that the majority of students can finish the Bachelor after 3 years.

#### RECOMMENDATION 4

**St. 2.1.1 partially fulfilled. Recommendations:** IPW has to take the leadership and a higher responsibility for the 1<sup>st</sup> and 2<sup>nd</sup> year Bachelor and integrate it with 3<sup>rd</sup> year education.

#### RECOMMENDATION 5

**St. 2.1.2 partially fulfilled. Recommendations:** Provide opportunities for students that they have responsibility for their own learning processes and are prepared for lifelong, self-directed learning.

#### RECOMMENDATION 6

**St. 2.2.1 and St. 8.2.2 not fulfilled. Recommendations:** The responsible person of each module should come from the IPW and must also coordinate the contents with departments and units teaching basic natural sciences (chemistry, biology, mathematics and physics). Teaching loads of a module should be in accordance to the ECTS-points allocated to each module, i.e. 1 credit point is equivalent to 25-30 hours (attendance and private learning). The number of examinations should be restricted to one per module (at most). Each module (or module-like element or "strukturierte thematische Einheit") should contain at least 5 credit points of workload.

#### RECOMMENDATION 7

**St. 2.2.3 partially fulfilled. Recommendations:** The global volume of fundamental sciences has to be reduced in the first two years of the Bachelor course. This will give time to displace courses from the third year which is clearly overloaded. In addition, some advanced natural sciences could be, at least partially, taught by teachers from the Pharmacy Department (IPW) in order to focus on relevant topics for future pharmacists.

#### RECOMMENDATION 8

**St. 2.3.2 partially fulfilled. Recommendations:** All persons responsible of teaching modules (including those of departments and units teaching in basic natural sciences) should be member or guest in the curriculum committee. Furthermore, take measures to ensure that experienced academic teachers (e.g. Oberassistenten, Privatdozenten, Apl. Professors) are members of the curriculum committee.

#### RECOMMENDATION 9

**St. 2.6.1 and St. 2.6.2 partially fulfilled. Recommendations:** Reorganize the curriculum so that behavioural and social sciences, medical ethics, educational sciences, and the legal and economic basis of health care that enable effective communication, clinical decision-making, and ethical practices can be intensified and become better visible.

#### RECOMMENDATION 10

**St. 2.7.1 partially fulfilled. Recommendations:** Provide better opportunities for Master students to have contact to patients, medical professionals and medical students. It could be interesting for the pharmaceutical students to collaborate with medical students during their curriculum in order to improve their further collaboration as major actors of the healthcare system.

#### RECOMMENDATION 11

**St. 3.1.1 fulfilled. Recommendations:** Consider talks with the Canton leadership about the way the selection (admission) process could be modified. Consider methods of providing advice and additional support to the large first-year classes.

#### RECOMMENDATION 12

**St. 3.2.1 fulfilled. Recommendations:** Introduce a Numerus Clausus which is orientated at the number of students which can adequately be accommodated given restrictions in laboratory space and personnel.

#### RECOMMENDATION 13

**St. 3.3.1 partially fulfilled. Recommendations:** Introduce a tutorial system for students, especially in the 1<sup>st</sup> and 2<sup>nd</sup> year, to overcome shortcomings from the previous education at high school.

#### RECOMMENDATION 14

**St. 3.4.2 partially fulfilled. Recommendations:** Reduce the weekly time of mandatory teaching (courses, lectures) in such a way that students who want to be involved in student affairs find time to be more involved in them.

#### RECOMMENDATION 15

**St. 4.1.2 partially fulfilled. Recommendations:** Publish guidelines for the evaluation of each theoretical and practical examination, and make them known to all persons involved in teaching (also external service departments).

#### RECOMMENDATION 16

**St. 4.2.1 partially fulfilled. Recommendations:** Prepare Module exams that assess mainly student's ability to apply and integrate knowledge and skills within and across topics.

#### RECOMMENDATION 17

**St. 5.2.2 and St. 7.4.1 partially fulfilled. Recommendations:** Take care that the academic "Mittelbau" (Oberassistenten etc) are better integrated into decision processes (e.g. in the Unterrichtskommission) in teaching matters.

#### RECOMMENDATION 18

**St. 5.2.4 partially fulfilled. Recommendations:** Provide a career concept for Postdocs which includes teaching responsibilities (which are helpful to them in their future careers).

#### RECOMMENDATION 19

**St. 6.2.1 partially fulfilled. Recommendations:** Provide a better integration of students into clinical pharmacy and allow adequate contact with patients and medical professionals.

#### RECOMMENDATION 20

**St. 6.5.1 partially fulfilled. Recommendations:** Make sure that enough teachers with a background in Pharmacy are included in the Department to guarantee adequate representation of pharmacy-related knowledge. All IPW faculty members and teaching staff,

especially young scientists should be engaged on a regular basis in educational expertise courses provided by the LET.

#### RECOMMENDATION 21

**St. 6.6.1 partially fulfilled. Recommendations:** Formulate a policy for cooperation with other educational institutions and the transfer of educational credit points

#### RECOMMENDATION 22

**St. 6.6.2 partially fulfilled. Recommendations:** Facilitate and encourage regional and international exchange of students.

#### RECOMMENDATION 23

**St. 7.3.1 partially fulfilled. Recommendations:** Action is required against the overload of both attendance and learning time, at least one of them should be reduced. Theoretically students should spend 20-30 h during a week at the university and 20 h at home for individual learning.

### 7 Recommendation on accreditation

- yes with conditions