STUDIJŲ KOKYBĖS VERTINIMO CENTRAS
CENTRE FOR QUALITY ASSESSMENT IN HIGHER EDUCATION

BIOCHEMISTRY FIELD OF STUDY

OVERVIEW REPORT

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I. INTRODUCTION

Overview report is based on the external evaluation of the biochemistry field of study in the following Lithuanian Higher Education Institutions (HEIs):

- Lithuanian University of Health Sciences
- Vytautas Magnus University
- Vilnius University

The external evaluation was organised by the Centre for Quality Assessment in Higher Education (SKVC), Lithuania.

This Overview report focuses on the main findings of the external evaluation of the field of study from a general point of view. External evaluation reports containing more detailed information on the field of study in the relevant HEIs, including evaluation points, commendations, and recommendations, are available on SKVC's website.

Based on the findings of the evaluation, the decision has been made to give a positive evaluation to the following HEIs and cycles:

- Lithuanian University of Health Sciences and first study cycle;
- Vytautas Magnus University and second study cycle;
- Vilnius University and first and second study cycles.

Upon receiving a positive evaluation, SKVC decides to grant full accreditation to the field of study and cycle for a period of 7 years.

II. OVERVIEW BY EVALUATION AREAS

This section of the Overview report highlights the overarching observations made by the expert panel regarding the positive aspects of the biochemistry field of study in Lithuanian HEIs, as well as areas identified for improvement.

1. STUDY AIMS, LEARNING OUTCOMES AND CURRICULUM

The curricula and objectives of the Biochemistry study programmes in the evaluated HEIs comply with the national regulatory requirements and are well aligned with the strategic goals of the HEIs. The content of studies in the programmes compare well with similar programmes internationally. The programmes train professionals to work as experts mainly in the biotechnology/health science sector, a prominent and still growing field in Lithuania. Common to all evaluated programmes is their strong foundation in chemistry, integration of theoretical studies with research and practical skills and the good interaction with social partners from the biotechnology sector, including diagnostic and pharmaceutial enterprises and health science service providers. This helps the programmes in maintaining a good touch and responsivity to the labour market needs, which is reflected by the good employment of biochemistry graduates.

2. LINKS BETWEEN SCIENTIFIC (OR ARTISTIC) RESEARCH AND HIGHER EDUCATION

All evaluated study programmes have strong links to scientific research in biochemistry. Latest developments in research are integrated in the teaching at both first and second cycle levels, partly through lectures, course work and laboratory practises but most importantly in the context final theses. The students are also introduced to the research done within the programmes and invited to research activities early on in their studies. Most teachers are active in research thereby facilitating efficient transfer of scientific progress to the teaching. Research activity in the field of biochemistry carried out in the HEIs is monitored regularly and has received favourable evaluations. The research topics are consistent with the aims of the study programmes. Overall, the research integrated in the study programmes supports high quality education and enables students to develop skills and competences for scientific research and further professional development.

3. STUDENT ADMISSION AND SUPPORT

The admission procedures to the study programmes are transparent, criteria-based and aligned with programmes´ learning outcomes. Recognition of foreign qualifications, partial studies, and non-formal or informal learning are regulated institutionally in accordance with national legislation guidelines. The programmes provide academic, social, and psychological support, and information on these is available to the students. Programmes offer opportunities for academic mobility through well-established international exchange programs such as Erasmus+, although these are used much less than what is possible.

4. TEACHING AND LEARNING, STUDENT ASSESSMENT, AND GRADUATE EMPLOYMENT

Learning outcomes and teaching methods are adjusted to the needs of modern day teaching. Students´progress is monitored systematically and their feedback is collected in a regular fashion by multiple means. The feedback is properly analyzed and often leads to adjustments in teaching. The policies to ensure academic integrity, ethical behaviour, nondiscrimination, and tolerance are

established, and procedures for appeals and complaints are effective. A wide range of support services are available to students, including support for students with disabilities. Graduates are well-employed as experts in the private and public sectors or continue their studies in the second cycle programmes often combined with work.

5. TEACHING STAFF

All evaluated programmes have a sufficient number of teaching personnel leading to very good teacher-to-student ratio and relatively small groups in teaching, in principle facilitating personal communication. The teachers have adequate academic qualifications, are active in research to varying extent but often at very high level, and are capable of developing the curricula and teaching methods in their programmes in a pedagogically purposeful manner. Teachers participate in academic mobility, mostly in relation to their research.

6. LEARNING FACILITIES AND RESOURCES

The Biochemistry stydy programmes are supported by excellent modern facilities, strong research environments, and extensive information resources. These strengths allow the programmes to make full use of their assets and remain responsive to scientific developments and labour market needs. The programmes also provide good examples of how collaboration with biotechnological companies can benefit the development of research infrastructure.

7. QUALITY ASSURANCE AND PUBLIC INFORMATION

The quality assurance procedures and tools, including collection of feedback in a systematic manner and using the feedback from students and other stakeholders to improve the programme, are functional in the evaluated programmes and guide the development and everyday running of the programme. The graduates are employed well in the Lithuanian job market, especially in the biotechnology sector. The programmes interact actively with their social partners, alumni and wider academic community, to help in further improving the programmes.

III. RECOMMENDATIONS

STRATEGIC RECOMMENDATIONS FOR THE BIOCHEMISTRY FIELD OF STUDY

Strategic recommendations at an institutional level (for HEIs)

To promote internationalisation of the study programmes. The evaluated study programmes would benefit from internalisation at several levels. Admission of non-Lithuanian students would give access to a wider pool of talent and guarantee sufficient number of students to keep the programmes viable in the time of decreasing size of age cohorts. International students also tend to provide additional inspiration to study events, which together with the necessary change to English as (an additional) teaching language would also serve as good preparation for the future work life, increasingly international in nature. As another aspect of internationalisation to be developed is the student mobility which is currently not used nearly as much as the opportunities and available funding would allow. While there are many reasons contributing to the situation, the HEIs should encourage the study programmes to adopt a more flexible policy in accepting studies performed abroad.

To incorporate artifical intelligence (AI) and its applications to teaching. Use of AI/large language models is changing the world rapidly, including teaching and learning at all levels of education and, naturally, multiple aspects of work life for which the training in the universities is focusing. Therefore, it is important to incorporate an AI dimension in the study programmes, ranging from instructions for the responsible use of AI tools in assessed studies to training in the use of AI for better learning and for the analysis of complex information, together with development of wider digital skills. Such "AI literacy" is currently lacking from the curricula, although included to some extent in various courses.

To support continuous development and updating of infrastructure. As an experimental science biochemistry is critically dependent on availability of excellent instrumentation and other research infrastructure. Scientific progress is often catalyzed by development of equipment and methods. Therefore, keeping the equipment which best serve the research priorities and training of future professionals up-to-date is critically important in improving the quality of science and teaching in the programmes.

To promote professional development of teachers. Research activity of the teachers varies and is dependent on research funding and on the availability of sufficient time left after teaching and possible administrative obligations. This may lead to a self-perpetuating development in which teaching staff heavily involved in teaching is left with limited opportunities for career development. To remedy the situation, the HEIs should allocate some funding to support research by devoted teachers and to better recognize teaching merits in the promotion and recruitment policy. Importantly, teaching merits should put weight not only on amount of teaching ("years of experience") but also to contributions to the development of teaching methods and approaches.

Strategic recommendations at the national level (for the Ministry of Education, Science and Sport)

To increase funding. Biochemistry is an experimental science which forms the solid foundation to most fields of bioscience and biomedicine and in which Lithuania has reached an exceptionally high level, which also fosters a vibrant biotechnology sector. Clearly, the current situation is a result of a long scientific tradition and wise investments and innovations in the past. The situation is not stable, however, and in order to maintain the top level research and further strengthen the field, it is

necessary to increase funding to biochemistry and related fields. In addition to top-quality research projects and initiatives, funding should be allocated to maintenance and continuous updating the research equipment, an aspect of key importance to experimental research, and to training of the next generation of experts.

To promote internationalisation of study programmes. Despite the high quality of biochemical education in the HEIs evaluated and the top level biochemical research, the study programmes are almost entirely Lithuanian, the students are Lithuanian and the language of teaching is Lithuanian. The language issue together with the student admission policies effectively limits or totally prevents entry of foreign students. At the same time, due to demographic trends, the study programmes are likely to face more and more difficulties in obtaining sufficient numbers of bright applicants. Eventually, this would lead to problems in finding skilled experts to the biotechnology sector, very important in Lithuania. Extending the student recruitment to outside of Lithuania would provide access to a much wider pool of talent. Moreover, foreign students tend to bring international flavour and additional inspiration and prepare the students to future work life, most cases in an international environment. The Ministry should promote and encourage internationalisation of studies by additional funding to scholarships to international students and to the units coping with financial issues related with internalisation of teaching, and, perhaps, by promoting international advertising campaign to make the high quality of university education in Lithuania better known.

To promote collaboration between HEIs. The evaluated study programmes each have their distinctive identities reflected in the programme names and details in the curricula. However, most of the content is highly similar between the first cycle programmes, but shows more variation in the second cycle programmes consistent with specialisation within the study field. Due to relatively small number of students, special courses, typically part of elective studies, can be difficult and costly for any single university. Collaboration between the study programmes in the HEIs, currently non-existent, would better facilitate organization of such courses and provide the students with a wider range of elective courses. Collaboration at course level could also be extended to visiting or shared teachers. In addition to these relatively easily accomplishable measures, in the future, a careful analysis of the optimal size and number of study programmes in the same field needed in the country may become necessary.

Recommendations on the evaluation process for Centre for Quality Assessment in Higher Education (SKVC)

The evaluation process is well-organized and effective. The recruitment of panellists aims at group with a wide range of expertise and viewing points to the field of study under evaluation. The arrangements between SKVC and the HEIs facilitate productive site visits. One aspect of the process which could be improved relates to the self-evaluation reports, which contain factual information on the structure and performance of the study programmes. The SERs are highly informative, but in spite of the shared structure, the reports present key statistical information on student and graduate numbers, graduation times, final theses, teaching hours, research funding, scientific publications, graduate employment, response rates of feedback surveys , etc., in widely different ways and extent. A unified standard format for numerical data would be highly beneficial in speeding up the analysis of the data in SERs by the panellists, facilitating direct comparisons and minimizing misunderstandings. Such a change should be guided by SKVC but include consultation with the HEIs to come up with clear and unambiguous presentation of data without disproportionate time-investment.