STUDIJŲ KOKYBĖS VERTINIMO CENTRAS
CENTRE FOR QUALITY ASSESSMENT IN HIGHER EDUCATION

MOLECULAR BIOLOGY FIELD OF STUDY

Vytautas Magnus University

EXTERNAL EVALUATION REPORT

Expert panel:

1. Panel chair: Prof. Ph.D. Grzegorz Węgrzyn..... (signature)
2. Academic member: Prof. Dr. Néstor V. Torres Darias
3. Academic member: Prof. Dr. Herbert van Amerongen
4. Social partner: Mr Julius Gagilas
5. Student representative: Mr Vėjas Strelčiūnas

SKVC coordinator: Dr. Ona Šakalienė

Report prepared in …
Report language: English

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I. INTRODUCTION

1.1. OUTLINE OF THE EVALUATION PROCESS

The study field evaluations in Lithuanian higher education institutions (HEIs) are based on the following:

- Procedure for the External Evaluation and Accreditation of Studies, Evaluation Areas and Indicators, approved by the Minister of Education, Science, and Sport;
- Methodology of External Evaluation of Study Fields approved by the Director of the Centre for Quality Assessment in Higher Education (SKVC);
- Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG).

The evaluation is intended to support HEIs in continuous enhancement of their study process and to inform the public about the quality of programmes within the study field.

The object of the evaluation is all programmes within a specific field of study. A separate assessment is given for each study cycle.

The evaluation process consists of the following main steps: 1) self-evaluation and production of a self-evaluation report (SER) prepared by a HEI; 2) a site visit of the review panel to the HEI; 3) the external evaluation report (EER) prepared by the review panel 4) accreditation decision taken by SKVC and its publication; 4) follow-up activities.

The main outcome of the evaluation process is the EER prepared by the review panel. The HEI is forwarded the draft EER to report on any factual mistakes. The draft report is then subject to approval by the external Study Evaluation Committee operating under SKVC. Once approved the EER serves as the basis for an accreditation decision. If a HEI is not happy with the outcome of the evaluation, HEI can file an appeal.

On the basis of the approved EER, SKVC takes one of the following accreditation decisions:

- **Accreditation granted for 7 years** if all evaluation areas are evaluated as exceptional (5 points), very good (4 points), or good (3 points).
- **Accreditation granted for 3 years** if at least one evaluation area is evaluated as satisfactory (2 points).
- **Not accredited** if at least one evaluation area is evaluated as unsatisfactory (1 point).

1.2. REVIEW PANEL

The review panel was appointed in accordance with the Reviewer Selection Procedure as approved by the Director of SKVC.

The composition of the review panel was as follows:

1. Panel chair: Prof. Ph.D. Grzegorz Węgrzyn Professor of Department of Molecular Biology at University of Gdansk (Poland);
2. Academic member: Prof. Dr. Néstor V. Torres Darias, Professor of Biochemistry and Molecular Biology at the University of La Laguna (Tenerife, Canary Islands, Spain);
3. Academic member: Prof. Dr. Herbert van Amerongen Head of the Laboratory of Biophysics, full professor at Wageningen University & Research (WUR) (Netherlands);
4. Social partner: Mr Julius Gagilas, Head of the laboratory Saide Genomics – Center for molecular diagnostics genomics and research (Lithuania);
5. Student representative: Mr Vėjas Strelčiūnas, vstrelciunas3@gmail.com, (student's representative), third-year student in the bioengineering study programme at Vilnius Gediminas technical university (VILNIUS TECH).

The site visit was organized on 15 May 2024 onsite.

Meetings with the following members of the staff and stakeholders took place during the site visit:

- Senior management and administrative staff of the faculty(ies)
- Team responsible for preparation of the SER
- Teaching staff
- Students
- Alumni and social stakeholders including employers.

There was no need for translation and the meetings were conducted in English.

1.4. BACKGROUND OF THE REVIEW

Overview of the HEI

Vytautas Magnus University (VMU) was established in 1922 and re-established in 1989. On 13 January 2018, the Parliament of Lithuania ruled that Aleksandras Stulginskis University and the Lithuanian University of Educational Sciences to be integrated into Vytautas Magnus University. The integration has expanded the capabilities of each of the three university communities, but this process required a few years to be completed. At the legal level, the integration was finalized in 2019, however, the optimization of various activities and organizational structures continued until 2022. VMU is managed by two collegial bodies, the Council and the Senate, and the separate managerial body of the Rector. The Council is a collegial management body which affirms the University's vision, mission and the strategy, financial and other strategic issues; the Senate is a collegial body managing the academic affairs of the University. The University is headed by the Rector, and the Rector's advisory institution is the Rector's Council. Currently, there are 14 academic divisions at VMU: Faculty of Arts, Faculty of Catholic Theology, Faculty of Economics and Management, Faculty of Humanities, Faculty of Informatics, Faculty of Law, Faculty of Natural Sciences, Faculty of Political Science and Diplomacy, Faculty of Social Sciences, Agriculture Academy, Education Academy, Music Academy, Institute of Foreign Languages, Botanical Garden.

Overview of the study field

The Molecular biology and Biotechnology program is conducted by the Faculty of Natural Sciences. The program was formally registered in 2001. Since molecular biology and biotechnology are rapidly developing disciplines, curricula of corresponding programs should be continuously updated which actually takes place at the Faculty. As the focus on life sciences, biology, biochemistry, genetics, biotechnology, environmental protection, ecology, alternative energy sources, climate change, and other issues grows, the popularity of study programs at the Faculty has also grown significantly in recent years. The Faculty boasts modern and constantly updated study premises, which are constantly renewed with the help of the EU Structural Funds. Students can conduct research not only in modern laboratories of VMU but also in research centres of other Lithuanian science and education institutions, for example, The Lithuanian Research Centre for Agriculture and Forestry, ThermoFisher Scientific Co., and others, with which VMU has signed student practise agreements.

Previous external evaluations

The previous evaluation by experts of an international external evaluation was conducted in 2013. Following the recommendations of the group of experts, the Molecular biology and Biotechnology program was accredited for a period of 6 years. All evaluation areas of the program received a good and very good grades, with the overall score of 19. None of the evaluation areas was rated "unsatisfactory". In the conclusions of the evaluation report, international experts provided 5 recommendations to the Molecular biology and Biotechnology study program. All of them have been taken into account while improving the content of the program and its implementation over the period 2016-2021.

Documents and information used in the review

The following documents and/or information have been requested / provided by the HEI before or during the site visit:

- *Self-evaluation report and its annexes,*
- *Final theses.*

Additional sources of information used by the review panel:

There were no additional sources of information have been used by the review panel.

II. STUDY PROGRAMMES IN THE FIELD

Second cycle/LTQF 7

Title of the study programme	**Molecular Biology and Biotechnology**
State code	6211DX012
Type of study (college/university)	University studies
Mode of study (full time/part time) and nominal duration (in years)	Full-time studies (2 years)
Workload in ECTS	120
Award (degree and/or professional qualification)	Master of Life Sciences
Language of instruction	Lithuanian, English
Admission requirements	Bachelor's degree
First registration date	1997-06-05
Comments (including remarks on joint or interdisciplinary nature of the programme, mode of provision)	-

III. ASSESSMENT IN POINTS BY CYCLE AND EVALUATION AREAS

The second cycle of Molecular biology study field at Vytautas Magnus University is given a **positive** evaluation.

No.	Evaluation Area	Evaluation points[1*]
1.	Aims, learning outcomes, and curriculum	4
2.	Links between scientific (artistic) research and higher education	3
3.	Student admission and support	4
4.	Teaching and learning, student assessment and graduate employment	4
5.	Teaching staff	4
6.	Learning facilities and resources	4
7.	Quality management and public information	4
	Total:	27

1 (unsatisfactory) - the area does not meet the minimum requirements, there are substantial shortcomings that hinder the implementation of the programmes in the field.
2 (satisfactory) - the area meets the minimum requirements, but there are substantial shortcomings that need to be eliminated.
3 (good) - the area is being developed systematically, without any substantial shortcomings.
4 (very good) - the area is evaluated very well in the national context and internationally, without any shortcomings.
5 (exceptional) - the area is evaluated exceptionally well in the national context and internationally.

III. STUDY FIELD ANALYSIS

AREA 1: STUDY AIMS, LEARNING OUTCOMES AND CURRICULUM

1.1. Programmes are aligned with the country's economic and societal needs and the strategy of the HEI

FACTUAL SITUATION

1.1.1. Programme aims and learning outcomes are aligned with the needs of the society and/or the labour market

The program shows a solid alignment between its training objectives and the needs of society and the labour market, both nationally and internationally. The program also addresses the growing demand for

biotechnology specialists by promoting research and innovation and contributes to the economic and social development of Lithuania; it correlates well with the notable growth of the sector in Lithuania.

1.1.2. Programme aims and learning outcomes are aligned with the HEI's mission, goals, and strategy

The degree proposal is effectively aligned with the mission, values and strategy of VMU. The program reflects VMU's commitment to academic excellence, interdisciplinary research, and the development of trained professionals. In particular, the SP aligns with this mission by offering an interdisciplinary approach that encourages critical thinking, creativity and preparation for continuous learning. In the same vein, the proposal is closely aligned with the objectives of the university strategy by providing comprehensive training in biotechnology and life sciences, promoting academic excellence and active participation in society.

The objectives and expected results coincide with the mission and values of the VMU by fostering a humanistic culture, promoting the comprehensive training of students and preparing them to be active and open members of the society. Finally, the program also aligns with the specific objectives of the university strategy by focusing on the training of highly qualified specialists, the development of interdisciplinary study programs and the promotion of applied research in collaboration with industry.

ANALYSIS AND CONCLUSION (regarding 1.1.)

The Molecular Biology and Biotechnology program at VMU is designed to meet the needs of society and the labor market, both nationally and internationally. This program responds to the growing demand for biotechnology specialists and promotes research and innovation, contributing to the economic and social development of Lithuania. This approach aligns with the notable growth of the biotechnology sector in the country.

The objectives and learning outcomes of the program are in line with VMU's mission, values and strategy. The degree proposal reflects VMU's commitment to academic excellence, interdisciplinary research, and the training of qualified professionals. The program promotes a humanistic culture and the comprehensive training of students and program offers an interdisciplinary approach that integrates biotechnology and life sciences, promoting academic excellence and active participation in society. The comprehensive training of students prepares them to be active and open members of society. In addition, the programs focus on the training of highly qualified specialists, the development of interdisciplinary study programs and the promotion of applied research in collaboration with industry.

Thus it can be concluded that the program is well aligned with the needs of the labor market and society, as well as the mission and strategy of the university. This program encourage research and innovation, promoting the economic and social development of Lithuania, and prepare students to be skilled professionals and active citizens in an ever-evolving society.

1.2. Programmes comply with legal requirements, while curriculum design, curriculum, teaching/learning and assessment methods enable students to achieve study aims and learning outcomes

FACTUAL SITUATION

1.2.1. Programmes comply with legal requirements

The degree proposal complies with the legal requirements in force in Lithuania and the standards established by the VMU. Attention to detail in program planning, correspondence with international and local guidelines,

and commitment to continuous evaluation ensure the quality and relevance of the program in the educational and professional context.

The program has been designed to take into account the level 7 requirements of the National and European Qualifications Framework and the general study requirements and the Life Sciences Study Field Group Descriptor; it conforms to the requirements of the Study and Learning Strategy. It consists of 120 ECTS credits spread over two years of full-time study, with a coherent distribution of compulsory and elective modules and incorporates continuous assessment involving students, teachers and employers through the Study Program Committee (SPC).

1.2.2. Programme aims, learning outcomes, teaching/learning and assessment methods are aligned

There is a clear alignment between program objectives, learning outcomes, and teaching/learning and assessment methodologies. The program objectives are clearly defined and reflected in the expected learning outcomes for each course in the program. Furthermore, teaching/learning and assessment methodologies are designed to address these learning outcomes effectively.

However, a possible improvement in this section could be to include specific mention of how the achievement of learning outcomes will be assessed and how feedback will be provided to students to facilitate their continuous improvement. It would be beneficial to include a detailed description of the assessment criteria used in each course and how they relate to the expected learning outcomes. Additionally, implementation of formative feedback strategies could be considered to help students understand their areas of strength and areas for improvement.

1.2.3. Curriculum ensures consistent development of student competences

The entire program offers a balanced combination of theoretical courses, practical projects and research work, ensuring consistent development of students' competencies in the field of molecular biology and biotechnology.

The program consists of 120 ECTS credits, distributed over 4 semesters. Each semester includes approximately 6 courses, allowing students to acquire the expected knowledge in a reasonable time. It also has a mandatory part and an elective part. The first includes the fundamental subjects of molecular biology and biotechnology; while the elective allows students to personalise the educational experience with courses that align with their interests and professional objectives. The emphasis on research is clearly appreciated, through carrying out research work and practical projects, which facilitates the application of theoretical knowledge in a practical environment. Finally, the master's thesis, which is reserved for the last semester of the program, allows students to delve deeper into a specific area of interest and demonstrate their ability to conduct independent research and produce high-quality academic work.

To improve the programme it could be beneficial to incorporate additional opportunities for the practical application of the acquired knowledge, such as internships in industry or collaborations with external research institutions. Additionally, consideration could be given to including additional courses that address emerging topics in the field of molecular biology and biotechnology to keep the program up-to-date and relevant in a constantly evolving scientific environment.

1.2.4. Opportunities for students to personalise curriculum according to their personal learning goals and intended learning outcomes are ensured

The entire program offers options for students to customise their educational experience according to their individual interests and goals. This flexibility ensures that students can develop a study plan that meets their specific needs and provides them with the opportunity to achieve their academic and career goals effectively. An example of this is the individualised study schedule that allows them to adjust to their specific learning

needs. Students have the option to design personalised study plans that follow Liberal Arts principles, allowing them to acquire knowledge and skills relevant to their academic and professional goals. Individual studies are regulated by specific VMU regulations and are available to selected students who demonstrate motivation and preparation. Students have the opportunity to choose junior or integrated courses from a specific field of study, giving them the opportunity to explore complementary areas to their main program. The program includes electives from a variety of options related to their area of interest, giving them the opportunity to delve deeper into specific topics within the field of molecular biology and biotechnology.

A possible improvement could be to include in this section a detailed information on how requests and approval of individualised study plans and individual studies are managed. It is important to ensure that the process is transparent, equitable and that adequate support and guidance is provided to students who wish to personalise their study plan. Additionally, the availability of certain elective courses may be limited due to the need for a minimum number of students to offer a specific course, which may restrict customization options for some students. Improving these aspects could strengthen the educational experience and ensure that the program meets standards of excellence in its field.

1.2.5. Final theses (applied projects) comply with the requirements for the field and cycle

In general, the process of preparing and defending final theses meets established standards and provides a solid framework for their preparation and evaluation in the field of molecular biology and biotechnology. A clear procedure is established for the preparation and defence of final theses, with general requirements defined in the General Order on the Preparation and Defense of Final Theses, as well as specific requirements established by the responsible faculty. Furthermore, the possibility of re-defending the final thesis in case of a negative evaluation and the process to appeal procedural violations ensure fairness and transparency in the evaluation process. The formation of the Commission for the Public Defense of Final Theses, composed of competent specialists in the field of study, guarantees that theses are evaluated by people with relevant experience in the subject area. Furthermore, the approval of the topics of the final thesis by the Dean and the appointment of the Evaluation Commission confirm the alignment of the topics with the objectives of the study program and the requirements of the field of study.

However, to further improve the process, it may be helpful to provide additional guidance to students on how to select and develop thesis topics that are aligned with their research interests and career goals. This could help strengthen the quality and relevance of the research carried out within the framework of the master's program.

ANALYSIS AND CONCLUSION (regarding 1.2.)

The title constitutes a solid proposal with highlights and areas for improvement identified.

In terms of alignment with the mission, values and strategy of the VMU, an adequate correspondence is observed. The program shows a clear commitment to creating liberal learning conditions, training active citizens, and contributing to global academic and cultural development. This alignment is essential for the fulfilment of the institutional mission. In terms of compliance with the legal requirements in force in Lithuania and at the VMU, the program proves to be in line with the established standards, both at the national and European level, guaranteeing the quality and relevance of the training offered.

Analysis of program objectives, learning outcomes, and teaching/learning and assessment methodologies reveals a coherent integration. Learning objectives and outcomes are aligned with the courses offered and teaching and assessment methodologies are designed to foster significant development of student competencies.

The evaluation of the consistency of the program in the development of students' competencies reveals a well-defined structure that covers both theoretical and practical aspects. The balanced distribution of

required and elective courses allows students to customise their study plan according to their personal interests and learning objectives.

Regarding compliance with the requirements of the field and the cycle provided for the final theses, the program establishes a clear and transparent process for the preparation and defence of the theses. The thesis topics are aligned with the objectives of the program and the requirements of the field of study, guaranteeing the quality and relevance of the research carried out.

As a whole, the SP stands out as a very good program at a national and international level, with some areas identified to further improve its excellence. These areas include providing additional guidance to students in selecting and developing thesis topics, as well as addressing any substantial deficiencies in meeting specific requirements. However, overall, the program is of high quality and demonstrates a high level in preparing students for successful careers in the field of molecular biology and biotechnology.

AREA 1: CONCLUSIONS

AREA 1	Negative - 1 Does not meet the requirements	Satisfactory - 2 Meets the requirements, but there are substantial shortcomings to be eliminated	Good - 3 Meets the requirements, but there are shortcomings to be eliminated	Very good - 4 Very well nationally and internationally without any shortcomings	Exceptional - 5 Exceptionally well nationally and internationally without any shortcomings
Second cycle				X	

COMMENDATIONS

The program is well aligned with the needs of the labour market and society and encourages research and innovation, promoting the economic and social development of Lithuania.
The program contains established standards, both at the national and European level.

RECOMMENDATIONS

To address shortcomings

None

For further improvement

1. An area of improvement is to emphasise the integration of social responsibility and environmental sustainability practices in the curriculum. The program could consider including courses or modules that address topics such as research ethics, environmental impact of biotechnology, and sustainable practices in the biotechnology industry.

2. It would be advisable to strengthen the mechanisms of assessment of learning outcomes and how feedback will be provided to students to facilitate their continuous improvement. It would be beneficial to include a detailed description of the assessment criteria used in each course and how they relate to the expected learning outcomes. Additionally, implementation of formative feedback strategies could be considered to help students understand their areas of strength and areas for improvement.

3. To further improve the process, it may be helpful to provide additional guidance to students on how to select and develop thesis topics that are aligned with their research interests and career goals. This could help strengthen the quality and relevance of the research carried out within the framework of the master's program.

4. Some developments could be done on how requests and approval of individualised study plans and individual studies are managed. It is important to ensure that the process is transparent, equitable and that adequate support and guidance is provided to students who wish to personalise their study plan. Additionally, the availability of certain elective courses may be limited due to the need for a minimum number of students to offer a specific course, which may restrict customization options for some students. Improving these aspects could strengthen the educational experience and ensure that the program meets standards of excellence in its field.

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

2.1. Higher education integrates the latest developments in scientific (or artistic) research and technology and enables students to develop skills for scientific (or artistic) research

FACTUAL SITUATION

2.1.1. Research within the field of study is at a sufficient level

The research in the field of molecular biology and biotechnology at VMU is carried out at a sufficiently good level. The last evaluation by the Lithuanian Science Council was conducted in 2023, when the VMU Faculty of Natural Sciences received a score of 3.57 points out of 5.00 possible. According to the rules, the overall score reflects progress trends, flexibility and openness in research management, and good future prospects in terms of attractiveness to society (including prospective students). The profile of research conducted by the teaching staff is wide enough to support the educational activities in the field of molecular biology and biotechnology. This concerns especially, but is not limited to molecular genetics, conservation biology and parasitology, molecular ecology. The most significant research results are published in peer-reviewed international journals. However, the ratio of articles published in such journals to other papers which appear in local or poorly indexed (thus hard to reach) journals/books should increase in the future to improve dissemination of the results and to strengthen the quality and importance of the obtained results. Publishing in recognized journals allows also to improve the reports due to useful comments of reviewers and editors who are top-level experts in the field and can provide a rigorous peer review. Importantly, the fields of studies carried out at VMU cover the broad area of molecular biology and biotechnology, providing a substantial background for teaching activities in these subjects. Several projects are conducted within the realization of external research grants which provides good conditions for effective studies on important scientific problems. International collaboration is well-developed with examples of effective studies carried out in both bilateral cooperation and larger consortia. Examples of collaborating foreign partners are Institute for Environmental, Engineering and Energy Research (Northern Macedonia), Masaryk University (Czech Republic), University of Warmia and Mazury in Olsztyn (Poland). and others. The plans of research development are provided, though quite scarcely. In fact, the vision of scientific development should be prepared more clearly. Nevertheless, the fields which will be especially explored include environmental protection, food technology and herbal medicines.

2.1.2. Curriculum is linked to the latest developments in science, art, and technology

The curriculum is evidently linked to current achievements in science and technology in the fields of molecular biology and biotechnology. Importantly, elements of novelty are introduced into the programs of courses, especially by including the use of newly developed research methods in laboratory work, exercises and practices. Another commendation is the use of recently published research results in the contents of

study courses by academic teachers. The crucial goal of the study program in *molecular biology* and *biotechnology* is to provide the foundation of knowledge and essential skills required by molecular biology professionals. Indeed, the content of the study program reflects recent discoveries, developments, achievements and results in the fields of molecular biology, molecular biotechnology, immunogenetics, molecular ecology, and others. The study program is also focused on the assessment of study courses and teachers, national development strategies, government decisions, and current issues in various fields of natural sciences and technological development. Indeed, many students continue their careers in the public and private sectors. Students should acquire knowledge and skills in topics relevant to local conditions, as well as worldwide, like the principles of the immune, cell and other systems, their structure, integration with other systems of vital biological objects; work with living cells, organisms, populations, environmental engineering, analysis of intracellular processes, work with cell cultures under laboratory conditions, application of the obtained results to modelling of biological systems, evaluation of intercellular relationships, relations between individuals and populations; modern research methods, the latest principles of molecular analysis, bioengineering, application of the latest biotechnological processes and methods, work according to the principles of good laboratory practice, rules of bioethics; acquired knowledge for solving emerging problems, identifying, analysing, planning strategies for solving biological, industrial, ecological, medical, agricultural and economic problems, planning and performing various measurements, processing and interpreting experimental data, classifying and presenting data; analyse the results.

2.1.3. Opportunities for students to engage in research are consistent with the cycle

To introduce students into the research conducted at VMU, during the first semester of the study, all teachers of the field study program introduce themselves and the research carried out by them, inviting students to join the research activities of interest to them. The good practice is the fact that students prepare their theses on the basis of their original research. Importantly, some students are involved in preparing and publishing scientific articles which include results of their experiments. This has also an impact on the next stages of education, as all graduate students prepare their theses on the basis of original studies, and the results of their research are published in scientific or popular science journals and presented at conferences. Importantly, students are involved (at the time of working on their diploma theses) in the realization of research projects, often conducted within scientific grants. This facilitates the process of introducing students into responsible conducting research, especially planning and performing experiments and analyzing their results. In some cases, when results obtained by students are especially interesting, they participate in scientific conferences, and some are co-authors of research publications.

ANALYSIS AND CONCLUSION (regarding 2.1.)

At VMU, the research in the fields of molecular biology and biotechnology is conducted at a good level. During the last evaluation, conducted by the Lithuanian Science Council in 2023, the research achievements of the VMU Faculty of Natural Sciences was scored 3.57 points out of 5.00 possible. This indicates that the research in the indicated fields is performed at a sufficiently high level to ensure appropriate level of lectures and practical classes. Nevertheless, an increase in the research activity is possible, and it would be beneficial for further development of the curricula of molecular biology- and biotechnology-related courses. Despite this, it is evident that the general curriculum is linked to current achievements in science and technology in the fields of molecular biology and biotechnology. This is supported by introducing elements of novelty into the programs of courses. The use of newly developed research methods in laboratory work, exercises and practical classes are included into the curricula of the courses. Importantly, recently published research results are considered and presented during lectures and classes by academic teachers. Students are engaged in the research. They prepare their diploma theses on the basis of results obtained in the course of original studies. It is worth underlining that some students are involved in presenting communications during scientific conferences, as well as in preparing and publishing scientific articles which include results of their experiments.

AREA 2: CONCLUSIONS

AREA 2	Negative - 1 Does not meet the requirements	Satisfactory - 2 Meets the requirements, but there are substantial shortcomings to be eliminated	Good - 3 Meets the requirements, but there are shortcomings to be eliminated	Very good - 4 Very well nationally and internationally without any shortcomings	Exceptional - 5 Exceptionally well nationally and internationally without any shortcomings
Second cycle			X		

COMMENDATIONS

1. Elements of scientific novelty are introduced into the programs of courses, especially by including the use of newly developed research methods in laboratory work, exercises and practices.
2. The use of recently published research results in the contents of study courses by academic teachers is good.
3. Students prepare their theses on the basis of their original research, and some students are involved in preparing and publishing scientific articles which include results of their experiments.

RECOMMENDATIONS

To address shortcomings

1. The vision of scientific development should be prepared more clearly
2. Research activity of teachers should be increased, to facilitate the transmission of scientific results into the teaching process.

For further improvement

1. The ratio of research articles authored by the teachers and published in internationally-recognized, peer-reviewed journals to other publications (especially in local or hardly accessible journals) should increase, to elevate the level of research which is then transmitted to teaching.

AREA 3: STUDENT ADMISSION AND SUPPORT

3.1. Student selection and admission is in line with the learning outcomes

FACTUAL SITUATION

3.1.1. Student selection and admission criteria and procedures are adequate and transparent

At VMU, the student selection and admission criteria are adequate, transparent and correlate to the learning outcomes. Each student is admitted to the study programme through the national system for applying to higher education institutions - LAMA BPO. The number of students choosing this study programme does not seem to be decreasing, the masters study programme appears to be popular for graduates not only from VMU bachelors programmes, but from students form other regions of Lithuania and international students as well. Students are well informed and do not have any major issues with the admission procedures.

3.1.2. Recognition of foreign qualifications, periods of study, and prior learning (established provisions and procedures)

Regarding the recognition of foreign qualifications, students have the possibility not only to develop many soft skills during their study process, but also have the possibility to have their past skills certified for certain activities done in the past. Contrary to the fact that the qualification certification system is developed quite well, students have noted, that communication between students and administration of the faculty as well as the central administration sometimes lacks dialogue, which results in students not being able to receive the necessary information on time; this also affects the aspect of foreign qualification recognition since students applying for study programmes who want to have their qualifications recognised, have to send it prior to the admission deadline, and they encounter communicational barriers.

ANALYSIS AND CONCLUSION (regarding 3.1.)

The student selection and admission criteria at VMU (Vytautas Magnus University) are described as adequate and transparent. The admission process aligns well with the learning outcomes and is conducted through the national system for applying to higher education institutions (LAMA BPO). The program remains popular among graduates from VMU, other regions of Lithuania, and international students. Students are generally well-informed about the admission procedures and do not face significant issues. In summary, the admission criteria and process at VMU are clear, transparent, and align with the learning outcomes. The master's program maintains its popularity among both local and international students, and the students are well-informed about the procedures.

VMU provides opportunities for students to develop soft skills and have their past skills certified with certificates. Despite a well-developed qualification certification system, communication between students and the faculty/central administration can be improved. Poor communication sometimes results in students not receiving timely information, affecting foreign qualification recognition. Students applying for programs and needing their qualifications recognized face difficulties due to these communication issues, which need to be resolved before admission deadlines. To summarize, while VMU offers robust opportunities for skill development and certification, there are communication issues between students and administration that hinder timely information dissemination. This affects the recognition of foreign qualifications, posing challenges for students who need their qualifications recognized before admission deadlines.

3.2. There is an effective student support system enabling students to maximise their learning progress

FACTUAL SITUATION

3.2.1. Opportunities for student academic mobility are ensured

Vytautas Magnus University (VMU) ensures ample opportunities for student academic mobility within the Molecular Biology and Biotechnology program. The university participates in various international exchange programs, such as Erasmus+, which allow students to study abroad and gain valuable international experience. Despite the existing framework, the actual participation of students in these programs has been

relatively low. Nevertheless, the university continues to promote these opportunities actively, aiming to increase the mobility rates among its students.

3.2.2. Academic, financial, social, psychological, and personal support provided to students is relevant, adequate, and effective

VMU provides comprehensive support to students enrolled in the Molecular Biology and Biotechnology program. The academic support includes access to modern laboratory facilities, experienced faculty, and personalized academic advising. Financial support is available through various scholarships and grants, including those provided by biotechnological companies. Social and psychological support services are accessible via the VMU Office for Student Affairs, which also assists with accommodation, health services, and career counselling. These support mechanisms are designed to ensure that students can focus on their studies and personal development effectively and seem to be working just fine.

3.2.3. Higher education information and student counselling are sufficient

The university offers extensive information and counselling services to students. These services include academic advising, career counselling, and psychological support. Information about the study program, including admission criteria and course requirements, is readily available on the VMU website and through the university's information systems. Regular consultations with faculty members and administrative staff ensure that students are well-informed about their academic progress and available opportunities. Despite the overall adequacy, there have been some noted communication issues between students and the administration, particularly concerning the timely dissemination of information.

ANALYSIS AND CONCLUSION (regarding 3.2.)

VMU's Molecular Biology and Biotechnology program provides robust support and opportunities for its students, ensuring a conducive environment for academic and personal growth. The university's commitment to academic mobility, comprehensive support services, and sufficient information and counselling resources significantly enhance the student's experience. However, there is room for improvement in increasing student participation in mobility programs and addressing communication gaps between students and the administration, which has been noted. Overall, VMU demonstrates a strong support framework that effectively meets the diverse needs of its students, preparing them well for both academic and professional success.

AREA 3: CONCLUSIONS

AREA 3	Negative - 1 Does not meet the requirements	Satisfactory - 2 Meets the requirements, but there are substantial shortcomings to be eliminated	Good - 3 Meets the requirements, but there are shortcomings to be eliminated	Very good - 4 Very well nationally and internationally without any shortcomings	Exceptional - 5 Exceptionally well nationally and internationally without any shortcomings
Second cycle				X	

COMMENDATIONS

The admission criteria and process are clear, transparent, and align with the learning outcomes.

The program provides robust support and opportunities for students, ensuring a conducive environment for academic and personal growth.

RECOMMENDATIONS

To address shortcomings
None

For further improvement
None

AREA 4: TEACHING AND LEARNING, STUDENT ASSESSMENT, AND GRADUATE EMPLOYMENT

4.1. Students are prepared for independent professional activity

FACTUAL SITUATION

4.1.1. Teaching and learning address the needs of students and enable them to achieve intended learning outcomes

The program makes an extensive use of a wide range of teaching methods (lectures, laboratory work, exercises, seminars, consultations and independent work).

The cumulative learning achievement evaluation system serves as the basis for equitable and objective evaluation of students. Several intermediate evaluations, colloquiums and final papers and exams are contemplated, as well as the defence of projects by students. This assessment structure encourages a progressive approach towards achieving learning objectives.

The program encourages independent learning through individual and group assignments, which develop critical thinking, analytical, and problem-solving skills. The combination of laboratory work, seminars, individual and group assignments provides students with a comprehensive experience that prepares them to face the challenges of the field of molecular biology and biotechnology.

In general, the teaching and learning methodologies used in the degree are appropriate and relevant. However, some actions could be implemented aimed at improving its effectiveness and adaptability to the changing needs of students and the educational environment.

4.1.2. Access to higher education for socially vulnerable groups and students with individual needs is ensured.

The VMU has put in place measures to ensure access to higher education for socially vulnerable groups and students with individual needs. VMU has a disability policy aimed at increasing the accessibility of studies by adapting their conditions to members of the VMU community with disabilities. Socially vulnerable groups and students with special needs are allowed to study according to an individualised study schedule, giving them flexibility to adapt their education to their individual circumstances. Discounts are offered on tuition and residency fees as well as scholarships for socially vulnerable groups. VMU offers advice and support for students with disabilities, access to adapted facilities, parking close to university buildings, specialised equipment in libraries and classrooms, and adapted rooms in residences. There is an individualised counselling program to facilitate the learning process. It is noteworthy that VMU has been recognized as a disability-friendly university by the Lithuanian Union of People with Disabilities, demonstrating its commitment in this area.

ANALYSIS AND CONCLUSION (regarding 4.1.)

VMU has implemented a variety of teaching and learning methodologies to suit the needs of students and enable them to achieve intended learning outcomes. In addition, measures have been adopted to facilitate distance learning, providing students with access to appropriate multimedia tools and technologies. Policies and programs have been implemented to ensure equitable access to higher education for socially vulnerable groups and students with individual needs. The university has established discounts on tuition and housing for groups such as orphans, people with disabilities, and low-income families. In addition, accessible study conditions have been created for students with disabilities, including the provision of individualised advice, specialised equipment and adapted accommodation. In summary, VMU has demonstrated a strong commitment to inclusion and equity in higher education through its programs and policies.

4.2. There is an effective and transparent system for student assessment, progress monitoring, and assuring academic integrity

FACTUAL SITUATION

4.2.1. Monitoring of learning progress and feedback to students to promote self-assessment and learning progress planning is systematic

The program's learning progress monitoring and student feedback systems are well established and provide comprehensive support for students on their path to achieving the intended learning outcomes. Methods and stages have been established to monitor students' learning progress. These include preparing students for studies, analysing course enrolment, analysing reasons for non-participation in midterm and final exams, and analysing midterm and final assessments of students. In addition, continuous monitoring of students' learning progress, social integration and study experience is carried out. Feedback is provided to students, including feedback after midterms and final exams, as well as discussion of midterm assessment results during classes. Students have access to their assessment results through the student portal and the Moodle virtual learning environment. Additionally, opportunities are provided for individual interviews with teachers to discuss the results and address any specific issues or needs.

However, there are areas for improvement identified from the students' own suggestions. These include the request for greater availability of video recordings of lectures attended by larger groups of students (not necessary those attended by a few students) in the Moodle environment, as well as the need to keep course content focused and structured, with a balanced workload in distance learning laboratory courses.

4.2.2. Graduate employability and career are monitored

VMU alumni engage in collaboration primarily through alumni clubs and university departments. They receive regular newsletters for updated information and guidance from an alumni coordinator on cultural and educational activities. The active VMU Alumni Club aims to unite graduates, foster relationships with the university, and participate in events to enhance students' professional skills. Members organize meetings, lectures, and excursions, offering expertise in study programs and quality assessment. Annually, the club, supported by the university, hosts VMU Alumni Day to unite graduates and share experiences. Since 2019, VMU alumni have the opportunity to register on the dialogue career mentoring platform to become mentors.

To ensure study quality and offer effective career planning services, VMU monitors the employment and career progress of graduates through alumni surveys, data from the Employment Service, and insights from the Government Strategic Analysis Centre. The Career Centre conducts annual surveys on alumni one year post-graduation, focusing on employment status, satisfaction with studies, job search efforts, and career preparation feedback. Survey results are shared on the University and Career Centre websites, with more

detailed analyses available on the University intranet. Collaboration with the Employment Service provides statistical data on job-seeking VMU graduates, highlighting differences in employment rates based on degree levels and fields of study. Overall, graduates value the University's role in preparing them for the job market, particularly emphasizing faculty support and practical experience in their high regard.

Overall the employment rate is good, ranging from 78% to 84%. Experts visiting noticed that former students really appreciate the education they received in the program. A lot of them have the chance to pursue further studies in a Ph.D. program or work in the biotechnology field.

4.2.3. Policies to ensure academic integrity, tolerance, and non-discrimination are implemented

The degree ensures academic integrity, tolerance and non-discrimination through a series of institutional measures and policies. Academic integrity is ensured through the application of the principles set forth in the VMU Statute, the VMU Code of Academic Ethics, the VMU Provisions on the Prevention of Plagiarism in Student Written Work, and the VMU Study Regulations. These documents establish policies and procedures to prevent and address plagiarism and other forms of dishonest behaviour by students during exams and other assessments. In the event of dishonest behaviour, professors are authorised to discontinue the student's performance, inform the dean of the faculty or chancellor of the academy, and begin an investigation to address the incident.

Non-discrimination and gender equality are promoted through the VMU Code of Academic Ethics and the VMU Gender Equality Plan for 2021-2025. These documents establish guidelines and measures to promote an inclusive and equitable university environment, as well as to address any forms of discrimination based on gender or other factors. During the period analysed, there were no cases of violation of the principles of academic integrity, tolerance and non-discrimination in the Molecular Biology and Biotechnology study program.

4.2.4. Procedures for submitting and processing appeals and complaints are effective

The process for submitting and processing complaints and grievances appears to be well structured and defined in the VMU regulations. Students have the right to file an appeal if they believe there has been an unfair assessment of their learning achievements or if they believe assessment procedures have been violated. The committee in charge of examining appeals has the authority to make decisions that include changing the evaluation of learning outcomes, allowing the student to repeat the exam in case of violations of the evaluation procedure, or dismissing the appeal if no solid grounds are found for change the evaluation.

During the period analysed, there were no appeals or complaints related to cases of academic dishonesty, which may indicate a respectful study environment and positive relationships between teachers and students. The absence of major conflicts could be attributed to effective preventive measures such as open dialogue between students and teachers, prompt response to problems raised by students, and guidance provided to teachers on the effective implementation of the study process. However, it is important to note that the lack of complaints does not necessarily indicate the absence of problems.

ANALYSIS AND CONCLUSION (regarding 4.2.)

The program demonstrates a strong commitment to academic integrity and non-discrimination. Procedures are clearly established to prevent and address cases of plagiarism and academic dishonesty, and an inclusive and respectful environment is promoted for all students, with specific measures to support those with disabilities or special needs. Although no cases of complaints or appeals have been recorded during the period analyzed, it might be beneficial for the program to implement proactive measures to encourage student feedback and participation in the continuous improvement of the program.

AREA 4: CONCLUSIONS

AREA 4	Negative - 1 Does not meet the requirements	Satisfactory - 2 Meets the requirements, but there are substantial shortcomings to be eliminated	Good - 3 Meets the requirements, but there are shortcomings to be eliminated	Very good - 4 Very well nationally and internationally without any shortcomings	Exceptional - 5 Exceptionally well nationally and internationally without any shortcomings
Second cycle				X	

COMMENDATIONS

Implementation of a variety of teaching and learning methodologies to suit the needs of students and enable them to achieve intended learning outcomes positively contribute to achieving knowledge and skills of the students.

Procedures preventing and addressing cases of plagiarism and academic dishonesty are well developed.

RECOMMENDATIONS

To address shortcomings

None

For further improvement

1. Although the teaching methods used are varied, it could be beneficial to incorporate other innovative pedagogical techniques, such as project-based learning, collaborative learning and gamification.

2. Although the program is mentioned as preparing students for professional careers in molecular biology and biotechnology, it could be useful to integrate even more soft skill development opportunities, such as communication, teamwork and leadership skills, as well as practical experiences in real work environments through internships or industry collaborations.

3. It would help to enhance the SP quality if some efforts are made to ensure educational accessibility to socially vulnerable groups and students with individual needs, such as the implementation of broader awareness programs and continuous needs assessment and the effectiveness of support services.
4. There should be a greater availability of video recordings of all lectures in the Moodle environment; this should be implemented in courses for bigger groups of students, not necessary for a few students per group.

AREA 5: TEACHING STAFF

5.1. Teaching staff is adequate to achieve learning outcomes

FACTUAL SITUATION

5.1.1. The number, qualification, and competence (scientific, didactic, professional) of teaching staff is sufficient to achieve learning outcomes

The team of teachers of the field of study courses in the area of molecular biology and biotechnology consists of 8 professors, 10 associate professors and 4 lecturers with a PhD degree. All of them are teachers whose main place of work is at VMU. They have great teaching experiences, from 6 to 30 years in academia. Research activities of the teachers are good. However, too many papers authored by them are published in local or poorly-recognized journals, making their results less visible. The level of research might also be higher when considering the potential of the teachers and the infrastructure. On the other hand, the number of contact hours with students for teaching staff is extremely high relative to academic teachers in other European countries. In VMU these numbers are between 450 and 600 hours per year, depending on the position, which is at least twice as much as in many other countries, even if including participation in exams or commissions, supervising preparation of theses, consultations, etc. in such a calculation. This is a likely reason for difficulties to conduct effective research. From Fig. 1 of the self-evaluation report, it appears that only between 10% and 35% of the working time of academic teachers is devoted to scientific work which is a relatively small proportion. Under such conditions, performing research is especially difficult due to overloading with lectures and/or classes. This, in turn, might weaken the efficiency of teaching, as excellent teaching in academia is possible only when research is conducted at the top quality. On average, 12–25 students for molecular biology and biotechnology courses are supervised by one teacher. The size of the group in seminars is 15–30 students, and in laboratory work the number is 10–12 students. For students preparing their master theses, a common case is 2 students per supervisor. Thus, at the departmental level, it is recommended that one teacher supervises no more than 5 final theses per semester. These numbers are reasonable and allow the teachers to effectively supervise the work of students.

ANALYSIS AND CONCLUSION (regarding 5.1.)

The number of academic teachers involved in the didactic process in the fields of molecular biology and biotechnology is sufficient, though not very high. The teaching staff consists of 22 persons, including 8 professors, 10 associate professors and 4 lecturers. This is enough, at the moment, while expansion of this group would be desirable. Academic activities of these teachers are efficient, but the majority of their work is focused on teaching which makes conducting research at a high level very difficult. Academic teachers can spend only 10-35% of their working time on research which might be insufficient to obtain significant results and to transfer research experience to teaching effectively.

5.2. Teaching staff is ensured opportunities to develop competences, and they are periodically evaluated

FACTUAL SITUATION

5.2.1. Opportunities for academic mobility of teaching staff are ensured

The mobility and academic exchange of teachers are effective. Recent visiting teachers came from various countries, including France, Poland, Slovakia, Turkey, the Czech Republic, the USA, Japan and others. The teachers from VMU also actively participate in activities at other Universities; this can be exemplified by their visits to academic centers in Italy, Czech Republic and Poland. Importantly, the teachers use various activities to improve their qualifications. They participate in various forms of international cooperation, like participation in joint international projects, carrying out joint research activities, teaching and/or conducting research. On average, 30% of teachers attend teaching and research visits to universities in other countries, like Finland, France, Italy, USA, Croatia, Turkey, United Kingdom, Latvia and Estonia.

5.2.2. Opportunities for the development of the teaching staff are ensured

Opportunities of development of teachers at VMU are relatively well congested. Teachers can participate in the VMU-provided courses and those organised by other national or international institutions. The VMU-organized courses for professional development are free of charge for VMU teachers. Several trainings are

conducted per month. Teachers can also conduct professional development outside the University, participating in teaching and research projects. Scientific development of teachers is facilitated by participation in various forms of international cooperation. The teachers are involved in joint international projects, carry out joint research activities, teach and/or conduct research between universities. On average, 30% of teachers attend teaching and research visits to universities in other countries. VMU regularly organizes seminars covering different life sciences research topics.

ANALYSIS AND CONCLUSION (regarding 5.2.)

Mobility and international collaboration of the teachers are effective with many examples of staff exchange between VMU and other Universities. Opportunities for the development of teachers of VMU are relatively well organized. The teachers can participate in many such activities free of charge. This provides a very efficient platform to develop their knowledge and skills. Participation in joint international projects facilitates to gain new knowledge and competences.

AREA 5: CONCLUSIONS

AREA 5	Negative - 1 Does not meet the requirements	Satisfactory - 2 Meets the requirements, but there are substantial shortcomings to be eliminated	Good - 3 Meets the requirements, but there are shortcomings to be eliminated	Very good - 4 Very well nationally and internationally without any shortcomings	Exceptional - 5 Exceptionally well nationally and internationally without any shortcomings
Second cycle				X	

COMMENDATIONS

1. The teachers can participate in many courses and other activities improving their teaching skills free of charge.

RECOMMENDATIONS

To address shortcomings

None

For further improvement

1. Too many research articles authored by teachers are published in local or poorly-recognized journals, making their results less visible. The level of research should become higher when considering the potential of the teachers and the infrastructure.

AREA 6: LEARNING FACILITIES AND RESOURCES

6.1.	Facilities, informational and financial resources are sufficient and enable achieving learning outcomes

FACTUAL SITUATION

6.1.1. Facilities, informational and financial resources are adequate and sufficient for an effective learning process

General study courses are mostly delivered in the central buildings of the VMU. They are located closely to each other facilitating easy change of study rooms during breaks. Special courses are mainly conducted in the Faculty of Natural Sciences buildings, where the administrative staff and teachers of special courses work. This is a reasonable solution as it allows administrative and teaching staff members to become more accessible for students. The Faculty shares the buildings in three places. The main Faculty building contains 10 classrooms (encompassing 440 places,) and 10 computer laboratories (each with 10–24 working places). All the buildings are adjusted for disabled people, including the presence of elevators, automatic doors, lifts for wheelchairs, marked stairs, and others.
Many classrooms and laboratories are equipped with video display facilities (projectors), internet connection, computerized teaching staffs, training stands and layouts and other visual aids. In other classrooms, teachers may use laptops computers and projectors. Stream lectures take place in large classrooms, often in combination with other degree programs involving students of the same subjects. Exercises and seminars take place in small classrooms, for working with one academic group (12 students). Laboratory work and exercises are performed in specialized laboratories which are suitable for an effective learning process.
The faculty has a sufficient material and technical base to perform laboratory work and research in the field of molecular biology and biotechnology. The practical classes and research work are conducted in 28 specialized laboratories. Exercises and seminars take place in small classrooms dedicated to working with one academic group (12 students). Laboratory work and exercises are performed in the specialized laboratories. The equipment is sufficient to perform molecular biology and biotechnology studies.
Library is well-equipped and offers a sufficient number of books and access to different journals. It is adequate to conduct studies in the fields of molecular biology and biotechnology.

6.1.2. There is continuous planning for and upgrading of resources.

There is a centralized system for monitoring and updating hardware and software at VMU. Every year, about 20% of computers are renewed, and the VMU computer network security systems are constantly updated. Only legal software is used in computer classrooms and other computerized workplaces. Every six months, the software is audited and updated or supplemented. The commercial software used in the study process is used with educational licenses and is available to students free of charge. This ensures that the computers and software are permanently available for the teaching process and research.
Laboratories of all study programs are well-equipped and material resources are available. If there are available funds (from the department, or from new projects or targeted funding of programs), the equipment is modernised. This is, however, challenging as projects are obtained in a competitive way, thus, the funds are hardly predictable. Nevertheless, each year the study committee of the programs prepares plans for the improvement of the infrastructure required for studies.

ANALYSIS AND CONCLUSION (regarding 6.1.)

The infrastructure (buildings, lecture rooms, classrooms, library) is good and sufficient to carry out the didactic process in the field of molecular biology and biotechnology. Informatic resources are relatively rich and kept in good shape, with regularly modernized equipment (computers) and software. Laboratories are also relatively well-equipped. The plans for modernizations are well-developed and realized in the field of informatics. The plans for laboratory equipment are significantly less developed. However, it is difficult to plan modernization of the laboratory equipment due to insufficient funds. Those obtained from projects are systemically used for exchange of the equipment, but these sources are not regular.

AREA 6: CONCLUSIONS

AREA 6	Negative - 1 Does not meet the requirements	Satisfactory - 2 Meets the requirements, but there are substantial shortcomings to be eliminated	Good - 3 Meets the requirements, but there are shortcomings to be eliminated	Very good - 4 Very well nationally and internationally without any shortcomings	Exceptional - 5 Exceptionally well nationally and internationally without any shortcomings
Second cycle				X	

COMMENDATIONS

1. High quality and well-equipped laboratories for practical classes; some of them are freshly renovated and prepared for specific teaching purposes.

RECOMMENDATIONS

To address shortcomings
None

For further improvement
None

AREA 7: QUALITY ASSURANCE AND PUBLIC INFORMATION

7.1.	The development of the field of study is based on an internal quality assurance system involving all stakeholders and continuous monitoring, transparency and public information

FACTUAL SITUATION

7.1.1. Internal quality assurance system for the programmes is effective

VMU's quality management in studies entails strategic planning, implementation, evaluation, and enhancement to align with higher education priorities, legal standards, and stakeholder needs. Various documents such as the VMU Statute, Quality Manual, and Study Regulations outline processes for ensuring continuous improvement. Key bodies like the Senate, Rectorate, Study Quality Unit, and Institute of Innovative Studies oversee quality assurance at different levels, with responsibilities distributed among Faculty Councils, Program Committees, Deans, and Department Heads. The Committee for individual programs, such as Molecular Biology and Biotechnology, comprising teachers, social partners, and students, collaborates to assess and improve program quality through periodic internal evaluations and implementation of improvement plans. Through active involvement of stakeholders and thorough analysis, VMU strives to maintain and enhance the quality of its study programs.
It is noticed that administration, teachers and students provided evidence that quality management processes are well organized.

7.1.2. Involvement of stakeholders (students and others) in internal quality assurance is effective

Quality assurance in studies at VMU, involves various stakeholders through different channels.

Teachers provide feedback through committee meetings, surveys, and sharing best practices, directly participate in quality enhancement actions at the course level, and engage in professional development opportunities.
Students provide feedback through student representatives, surveys, discussions, and direct interaction with teachers. They actively participate in classes and individual tasks. Student representatives participate in improvement actions at the program level. The VMU Student Representative Council (SRC) trains student representatives and ensures their understanding of duties and responsibilities. SRC facilitates communication and experience sharing among student representatives.
Social Partners (Employers): suggest improvements regarding program relevance to the labor market and student practical skills. Information gathered through surveys, Career Days, discussions, and joint project collaborations. Most active social partners significantly contribute to quality enhancement activities. As an example: VMU accepted suggestion by social partner "Genomika" to improve bioinformatics learning outcomes for students.
Alumni provide suggestions through surveys and meetings organized by Alumni associations. They participate in discussions to recommend study quality development.

Periodic electronic surveys gather information from various stakeholders: students evaluate teaching and learning at the end of each semester. First-year students report reasons for choosing the program and initial impressions. Graduating students provide feedback on studies, final theses, and job market preparation. Alumni share their experience adapting to the labor market 12 months after graduation. Teachers offer their opinion on teaching, professional development, student involvement, and working conditions.
Faculty-initiated surveys target specific needs (e.g., employer surveys on graduate preparedness).
Survey results are analyzed, summarized, and presented to stakeholders within 3 months of completion. Results are made public on the VMU website, emailed to students and teachers, shared on social media, and stored in various university channels.
Overall, VMU demonstrates a well-structured approach to quality assurance by actively involving stakeholders in the process. This multi-channel approach ensures a comprehensive understanding of strengths and weaknesses in the program, leading to continuous improvement.

7.1.3. Information on the programmes, their external evaluation, improvement processes, and outcomes is collected, used and made publicly available

VMU is focusing on quality assurance by data collection, analysis, and improvement actions. On an annual basis, the University reviews program compatibility with research trends, labor market needs, and student demand. VMU analyzes program resources, faculty competence, student progress, mobility, and other aspects, integrates stakeholder feedback and course-level teaching evaluations.
Centralized university data on admissions, student/faculty numbers, graduation rates, and employment, stakeholder surveys, discussions, and interviews are used to evaluate the study programme.
Information on study program assessment and improvement is shared with faculty, social partners, and students through various channels (website, email, social media).
Examples provided in SER how feedback was used for improvement:

- ,,Based on 2021 feedback, the Molecular Biology and Biotechnology program purchased equipment and improved infrastructure.
- In response to student requests, VMU enhanced the distance learning environment by providing more materials and clearer assignment requirements.
- Faculty adjusted teaching methods based on student feedback on assessment clarity and feedback frequency."

7.1.4. Student feedback is collected and analysed

VMU gathers and analyzes student feedback to improve the quality of teaching and learning. Teaching and Learning Evaluation surveys are conducted at the end of each semester. It assesses student perception of teacher quality, program quality, and specific courses.

EXIT Survey is administered to graduating students, it evaluates the program overall, final thesis experience, and preparation for the labor market. Both surveys include open-ended questions allowing students to elaborate on their experiences.
Quantitative data gathered from the surveys: scores are averaged to get a general understanding of student satisfaction. (e.g., 9.11 points for program quality in "Teaching and Learning")
Qualitative data analyzed: comments from open-ended questions are analyzed to identify strengths, weaknesses, and specific areas for improvement.(e.g. student comments on limited lab access in Molecular Biology and Biotechnology).
Program committees discuss feedback, identify root causes of issues, and propose solutions (e.g., addressing limited lab access in Molecular Biology and Biotechnology). Based on positive feedback, successful teaching methods are shared among faculty. Study Program Committee develop and monitor plans to address identified shortcomings.
Overall, VMU utilizes student feedback through surveys and open-ended questions to gain a comprehensive understanding of student experiences. This data is analyzed and used to continuously improve teaching quality, program offerings, and student support services.
During visit, experts received confirmation from students that their feedback is highly valued and promptly addressed with regard to both social aspects and the quality of studies.

ANALYSIS AND CONCLUSION (regarding 7.1.)

VMU has a well-organized quality management system with clear processes for continuous improvement. Stakeholders (students, employers, alumni) are actively involved in program evaluation through various channels like surveys, committees, and discussions. VMU gathers and analyzes data from surveys, program reviews, and external evaluations to identify strengths and weaknesses in programs.
Feedback is used to make improvements, such as purchasing equipment, enhancing online learning environments, and adjusting teaching methods. Student feedback is highly valued and addressed promptly to improve the overall learning experience.
The effectiveness of VMU's multi-channel approach to quality assurance is acknowledged.

AREA 7: CONCLUSIONS

AREA 7	Negative - 1 Does not meet the requirements	Satisfactory - 2 Meets the requirements, but there are substantial shortcomings to be eliminated	Good - 3 Meets the requirements, but there are shortcomings to be eliminated	Very good - 4 Very well nationally and internationally without any shortcomings	Exceptional - 5 Exceptionally well nationally and internationally without any shortcomings
Second cycle				X	

COMMENDATIONS

Involvement of stakeholders (students, employers, alumni) in program evaluation through various channels like surveys, committees, and discussions positively contribute to optimization of the program and making it modern and reflecting needs of the society and the labour market.

RECOMMENDATIONS

To address shortcomings
None

For further improvement

1. To exploit the existing infrastructure: work on marketing and attract more students. Current infrastructure allows to provide high quality education. More visibility would help attract more and better students and further develop the study programme.
2. To extend the involvement in international projects, as international collaborations would be helpful for the visibility of the curriculum.

IV. SUMMARY

The program of Molecular biology at VMU is well connected with the needs of the labor market and society. It also fits with the mission and strategy of the university, and reveals a coherent integration. While the program is of high quality and demonstrates a high level in preparing students for successful careers in the field of molecular biology and biotechnology, some areas can be improved, including additional guidance to students in selecting and developing thesis topics, and to emphasise the integration of social responsibility and environmental sustainability practices in the curriculum. For example, including courses addressing research ethics, environmental impact of biotechnology, and sustainable practices in the biotechnology industry would further improve the program.

The research in molecular biology and biotechnology is generally at a good level. Nevertheless, an increase in the research activity is possible, and it would be beneficial for further development of the curricula of courses focused on molecular biology and biotechnology. Nevertheless, the general curriculum is linked to current achievements in these fields which is exemplified by presenting recently published research results during lectures and classes by academic teachers. Importantly, students prepare their diploma theses on the basis of results obtained in the course of original studies.

The admission criteria and process at VMU are clear, transparent, and aligned with the learning outcomes. The program provides support and opportunities for its students, ensuring a conducive environment for academic and personal growth. Experiences of students can be enhanced by comprehensive support services, information and counselling resources. What can be improved is increasing participation of students in mobility programs and addressing communication gaps between students and the administration.

Programs and policies of VMU reveal a strong commitment to inclusion and equity in higher education. A commitment to academic integrity and non-discrimination is clearly demonstrated. Procedures are established to prevent and address cases of plagiarism and academic dishonesty. Inclusive and respectful environment is promoted for all students, with specific measures to support those with disabilities or special needs.

The number of academic teachers involved in the didactic process in the field of molecular biology and biotechnology is sufficient to effectively realize the curriculum. Academic activities of the teachers are sound, however, the majority of their work is focused on teaching which makes conducting research at a high level difficult. It is also evident that too many research articles authored by teachers are published in local or poorly-recognized journals, making their results less visible. Therefore, level of research should become higher, especially if considering the high potential of the teachers and the well-developed VMU infrastructure which is more than sufficient to conduct high quality research and to carry out the courses in the fields of molecular biology and biotechnology. Mobility and international collaboration of the teachers are effective.

Importantly, opportunities for the development of teachers of VMU are well organized, and the teachers can participate in many courses, workshops, etc. free of charge.

The quality management system is well-organized, with clear processes for continuous improvement. Students, employers, and alumni are actively involved in program evaluation, using various tools, like surveys, committees, and discussions. Results of such analyses are considered to identify strengths and weaknesses in the program. Examples of the feedback include specific improvements, like purchasing equipment, enhancing online learning environments, and adjusting teaching methods. Student feedback is highly valued and addressed promptly to improve the overall learning experience. The effectiveness of the multi-channel approach to quality assurance is acknowledged.

In summary, the molecular biology and biotechnology program at VMU is well-developed and effectively realized. The infrastructure is very good and academic teachers have a high potential. Quite few aspects can be improved, like higher research activities of academic teachers with publishing their works mostly in international journals and providing additional guidance to students in selecting and developing thesis topics. Overall, the evaluation is positive with some suggestions for further improvement.
Finally, the expert panel would like to thank for efforts of the VMU authorities, staff members, and academic teachers for their efforts in preparing clearly written self-evaluation report and for nicely organized site-visit as well as for many interesting and important discussions with the review panel.

V. EXAMPLES OF EXCELLENCE

Examples of excellence should include examples exhibiting exceptional characteristics that are, implicitly, not achievable by all.

If, according to the review panel, there are no such exceptional characteristics demonstrated by the HEI in this particular study field, this section should be skipped / left empty.