ESTONIAN QUALITY AGENCY
FOR HIGHER AND VOCATIONAL EDUCATION

Report for Institutional Accreditation

Estonian University of Life Sciences

2022

Table of contents

Table of contents 2
Introduction 3
Summary of the institutional accreditation findings 9
1.1. Strategic management 14
1.2. Resources 19
1.3. Quality Culture 24
1.4. Academic ethics 27
1.5. Internationalisation 33
1.6. Teaching staff 38
1.7. Study programme 42
1.8. Learning and teaching 47
1.9. Student assessment 52
1.10. Learning support systems 56
1.11. Research, development and/or other creative activity 61
1.12. Service to society 66
2. Assessment findings of the sample of the study programmes 70
2.1. Environmental Protection Bachelor's study programme 70
2.1.1 Planning and management of studies 70
2.1.2 Learning, teaching and assessment 72
2.1.3 Development, cooperation and internationalisation of teaching staff 74
2.2. Animal Science Master`s study programme 76
2.2.1 Planning and management of studies 76
2.2.2 Learning, teaching and assessment 79
2.2.3 Development, cooperation and internationalisation of teaching staff 82
2.3. Civil Engineering (Rural Building) Integrated study programme 83
2.3.1 Planning and management of studies 84
2.3.2 Learning, teaching and assessment 87
2.3.3 Development, cooperation and internationalisation of teaching staff 90
2.4 Veterinary Medicine and Food Science Doctoral study programme 92
2.4.1 Planning and management of studies 93
2.4.2 Learning, teaching and assessment 95
2.4.3 Development, cooperation and internationalisation of teaching staff 97

Introduction

Institutional accreditation

'Institutional accreditation' is the process of external evaluation which assesses the conformity of a University or higher education institution`s management, work procedures, study and research activities and environment to both legislation and the goals and development plan of the higher education institution itself. This is feedback-based evaluation in which an international assessment panel analyses the strengths and weaknesses of the institution of higher education based on the self-assessment report of the institution and on information obtained during the assessment visit, providing recommendations for improvement and ways of implementing them.

The goal of institutional accreditation is to support the development of strategic management and quality culture that values learning-centeredness, creativity, and innovation in the higher education institutions (**HEIs**), as well as to increase the societal impact of education, research and development delivered by the HEIs.

HEIs are assessed according to twelve standards of institutional accreditation. Assessment focuses on the core processes of the HEI – learning and teaching, research, development and creative activities, and service to society – as well as on strategic management of the organisation and resource management. The learning and teaching process is examined in more detail under five standards (study programme, teaching staff, learning and teaching, student assessment, and learning support processes). Throughout the assessment process, there is a focus on academic ethics, quality culture and internationalisation.

The Institutional Accreditation Report consists of two parts: (1) evaluation of twelve institutional accreditation standards, and (2) a report on quality assessment of a sample of study programmes.

Educational institution must undergo institutional accreditation at least once every seven years based on the regulation approved by EKKA Quality Assessment Council for Higher Education Guidelines for Institutional Accreditation.

The institutional accreditation of Eesti Maaülikool (Estonian University of Life Sciences, EMÜ) took place in March 2022. The Estonian Quality Agency for Higher and Vocational Education (**EKKA**) composed an international expert panel, which was approved by the higher education institution. The composition of the panel was thereafter approved by the order of EKKA director.

The composition of the expert panel was as follows:

Mark Richardson (Chair)	Professor Emeritus, University College Dublin, Ireland
Johanna Björkroth	Professor, University of Helsinki, Finland
Carmen Fenoll	Professor, University of Castilla-La Mancha, Spain

Ivar Kruusenberg	Senior researcher, National Institute of Chemical Physics and Biophysics; CEO, PowerUp Energy Technologies Inc.; Member of the Research and Development Council of the Government, Estonia
James Longhurst	Professor, University of the West of England, United Kingdom
Marialena Nikolopoulou	Professor, University of Kent, United KingdomK
Alvija Salaseviciene	Director, Food Institute of Kaunas University of Technology, Lithuania
Marge Vaikjärv	PhD student, University of Tartu, Estonia

Assessment process

The assessment process was coordinated by EKKA staff – Liia Lauri and Marit Sukk.

An initial preparation phase took place on 18 February 2022 where the distribution of tasks between the members of the assessment panel was determined, following an introduction to the Higher Education System as well as the assessment procedures by EKKA. Members of the team subsequently agreed the overall questions and areas to discuss with each group during the site visit and to a detailed schedule for the site visit.

The site visit commenced on Friday 18th March 2022, when two members of the Expert Panel (an international expert and the student representative) inspected the infrastructure, particularly the laboratory facilities. For three days, from Tuesday 22nd to Thursday 24th of March 2022, meetings were held online with representatives of the Estonian University of Life Sciences as well as external stakeholders.

Over the following four weeks the panel exchanged correspondence, during which the findings of the panel were discussed in detail and the structure of the final report was agreed. Findings of the team were compiled in a first draft of the assessment report and evaluation of the 12 accreditation standards.

In finalising the assessment report, the Panel took into consideration comments made by the institution. The Panel submitted the final report to EKKA on 6 June 2022.

The current report is a public document and made available on EKKA website after EKKA Council has made an accreditation decision.

Information about Eesti Maaülikool, the Estonian University of Life Sciences

Eesti Maaülikool, the Estonian University of Life Sciences (EMÜ) is the fourth largest of six public universities in Estonia. EMÜ is a public legal entity acting according to legislative acts and agreements under which, as with other universities in Estonia, it enjoys a degree of independence which ensures the freedom to make its own decisions in teaching and research. The University is a specialist cultural institution providing higher education in agriculture, veterinary medicine, and forestry, informed by

research and service to society centred around the bioeconomy and the development of rural life and rural economy on a value chain basis.

The main campus is Tähtvere, a woodland setting in the city of Tartu and there are six field bases including a dairy research farm.

Adopting the Eesti Maaülikool name in 2005, the origins of EMÜ date back to 1848, when Tartu Veterinary School was founded and 1919 when the Department of Agriculture was established in Tartu University. From 1873 to 1918 the school operated under the name of Tartu Veterinary Institute. In 1919 the institute was incorporated into Tartu University as the Faculty of Veterinary Medicine. In the same year the Department of Agriculture was established in Tartu University but swiftly divided into two departments: Forestry and Agronomy. In 1946, a separate Faculty of Forestry was established. Subsequently the Estonian Agricultural Academy was established in 1951. Engineering studies and research started when the Chair of Agricultural Mechanisation (1945–1952), the Chair of Lorries and Machine Building (1946–1951) of Tartu University and the Faculty of Agricultural Mechanisation of the Tallinn Polytechnical Institute (1950–1952) were merged and integrated into the Academy in 1951. The Academy became the Estonian Agricultural University in 1991, after which a further six research institutes and centres were merged into the Academy. Following registration in 2003 as a public legal entity, the structure of the University was reformed around five institutes and several colleges in 2005, at which point the University was renamed Eesti Maaülikool, Estonian University of Life Sciences. A recent internal restructuring has consolidated the structure into three institutes and two centres as of 2022.

The origins and development of the University has had the desired effect of concentrating Estonian veterinary, animal science, agriculture, and forestry research in a national centre. The international reputation of the University has followed and is growing. Currently EMÜ sits in the 801 to 1000 band of world university rankings. Nevertheless, it is one of the top 100 universities in the world in the field of agriculture and forestry, ranked 51 to 100. The Thomson Reuters Essential Science Indicators database places EMÜ in the top 1% most cited research facilities in the world in the field of plant and animal science, as well as environment and ecology.

The total number of students in academic year 2020/2021 was 2961. Using full time equivalents the student-academic staff ratio is of the order 9:1. The number of doctoral students at the University was 225 (8%). There were 284 international students (10%). Admitted student numbers of 962 were counterbalanced by 544 dropouts (equating to 57% of the annual intake numbers). Aggregate data is presented in Table 1, based on information provided by the University (SER, pp.14-15).

Table 1. Aggregate data on student numbers for academic year 2020/2021

2020/2021	**Student numbers**	**International students**	**Admissions**	**Drop-outs**	**Graduates**
Bachelor's studies	1236	1	471	255	219
Professional Higher Ed.	173	0	61	46	11
Integrated Engineering	211	0	65	37	13
Veterinary Medicine	352	201	71	12	45

Master's studies	764	25	263	168	169
Doctoral studies	225	57	31	26	21
Total	**2961**	**284**	**962**	**544**	**478**

The number of employees as of 31 December 2020 was 945, of whom 478 were in an academic position. The staff profile covers 29 countries. The number of international employees was 74, of whom 60 were in an academic position. The academic staff profile is gender balanced with 48%/52% identifying as women/men respectively. The University has published guidelines on equal treatment and a gender equality plan. The average age of staff is 47. The percentage of academic staff with a Ph.D. degree (31 December 2020) was only 55%. Excluding junior research fellows, included in the employee numbers, the figure rises to 64%. The University has recently adopted new career structures and criteria for academic appointment and promotion which should improve this metric significantly by 2025.

Main impressions of the self-evaluation report and the visit

The SER was suitably comprehensive in respect of information and data. The template structure was closely followed and the volume of material under each heading was just about right. There were no examples of unhelpful 'information overload' and hyperlinks were efficiently used to direct the Panel to relevant policies, procedures, reports, or statistics. This allowed the Expert Panel to readily assemble the evidence it needed to assess prescribed criteria or to identify topics for further investigation during the site visit.

Preparations by EMÜ for the 2022 accreditation process began immediately after EMÜ received the EKKA Council decision on the 2019 accreditation. It is not surprising therefore that the SER was written as a defence, in a style that best explained to an external audience the extent to which EMÜ conforms to the 12 standards. The opportunity was not used as much to write it as a reflective journal for EMÜ staff to use on their joint journey towards an enhanced organizational quality culture. This approach to the SER is understandable. It was strong on identifying conformity with accreditation criteria and areas for incremental improvement but did not delve too deeply into exploring brave or controversial options in tackling long-standing national challenges such as drop-out rates. Nevertheless, it was clear that EMÜ had engaged in reflective discussion in the 2019-2021 period that had led to significant actions.

In contrast to the (understandably) defensive tone of the SER, the site visit was characterized by stimulating, open and candid discussions with all stakeholders. The pride that all stakeholders have in their association with EMÜ was evident in their answers to the Panel's questions with clarity and confidence. There was a free exchange of ideas which demonstrated interest and engagement with the accreditation process. The 'joined up thinking' in EMÜ, evident in the cohesive SER, was also evident when different facets of the same issue were explored with different stakeholder groups. Queries requiring the supply of further information, requested either before or during the site visit, were answered speedily and comprehensively. This reinforced the Panel's impression that the steps being taken to enhance the quality culture had involved inclusive and productive internal discussions

in the 2019-2021 period despite the restrictions on in-person meetings caused by the Covid-19 pandemic.

The Panel thank those in EMÜ, and EKKA involved in organising the review process for their energetic engagement and the courtesy extended to the Panel in dealing with our questions and requests.

Main changes on the basis of recommendations of the previous institutional accreditation

The previous accreditation of EMÜ took place in 2019. The University received accreditation for three years. There were 11 recommendations. The reaction of the university management to these recommendations has been open, swift and comprehensive. Fully addressing some of the recommendations involved significant action and this was achieved despite the restrictions caused by the COVID-19 pandemic which limited the ability for on-site in-person meetings.

Specifically:

- The preparation of the Action Plan 2021-2025 has been highly inclusive leading to widespread 'buy-in'. The link between the Development Plan goals and measurable targets in the latest Action Plan, together with a more unified roadmap for the centrality of the bioeconomy as an interdisciplinary theme in teaching and research has been strengthened.
- Notwithstanding existing good proactive management of equipment maintenance through the depreciation fund established in 2016, prior to the 2019 accreditation, an assessment of ongoing maintenance requirements and costs now forms part of the procurement approval process for significant equipment purchases. The Rector also has a reserve fund to support resource intensive world class research equipment.
- The university quality management system was further developed and documented in 2021. Greater resources have been committed and there is also now specialist support from the involvement of a professional in the field of organizational quality management from one of the academic departments.
- An action plan for gender equality and guidelines for equal treatment has been developed and published in a prominent position on the University website. Seminars have been held on the principles and implementation of the code of conduct for academic integrity. An Academic Ethics Committee was established in 2021 to deal with cases previously dealt with by the Senate Academic Committee
- Better integration of international and Estonian students has been achieved by increasing the number of English taught modules in all curricula such that international and Estonian students have more opportunities to work together. The Student Union is organizing bilingual events and Estonian students are acting as tutors and buddies to international students. The ASTRA programme has increased two-way mobility of academic staff over the review period.
- The University has specified that from January 2020 senior lecturers cannot be appointed without a PhD degree or a corresponding qualification. Persons already in contract as lecturers prior to January 2020 and not having a doctoral degree must meet new requirements for the position by their next staff evaluation
- From 2020/2021 curricula have been updated to integrate UN Sustainable Development Goals and this has been reflected in marketing campaigns to potential applicants, especially those currently in upper secondary schools and vocational schools, leading to an increase in the number of applicants to the less popular programmes in the agricultural sciences portfolio

- Staff training has prioritized student-centered learning approaches. Admission requirements and procedures have been reformulated. Analysis of reasons for dropout and implementation of preventative measures is ongoing.
- Enhanced correlation between assessment strategies and learning outcomes have been implemented by improving academic staff pedagogic skills through training and exchanges of experience.
- A range of measures have been taken to enhance student support, both psychological counselling and financial difficulties
- Alumni engagement is strong. The 'Open University' is increasingly catering to the needs of lifelong learners.

These actions record specific responses to specific recommendations. It should be emphasized that it was clear to the Expert Panel from meetings with all stakeholders that the management approach to the previous accreditation findings and recommendations was systematic and went beyond a set of separate 'quick fixes' to the previous accreditation report recommendations. Interconnected actions have recently been taken at management level which will contribute to the development of an embedded quality culture and work is now in progress to bring the wider university community on this journey.

Summary of the institutional accreditation findings

General Findings:

The Expert Panel was impressed by the clear and focused strategic management of the University towards its twin goals of being a world ranked university specializing in selected areas of life sciences research and innovation while at the same time serving a wide spectrum of national needs in respect of teaching, applied research and support to local industry. Many aspects of the University's operations investigated by the Panel were permeated with examples of excellence. The University has accurately identified the challenges facing higher education institutions in today's highly competitive global market. Undeterred by the relatively small size of the university and motivated by its high world rank by subject area in one of its core disciplines, the University has embarked on a journey to significantly enhance its performance across a range of areas by 2025. The Expert Panel endorse the direction of travel and found much to inspire confidence in the probability of targets being achieved.

Management has already successfully implemented significant changes to the structure of the University and consolidated academic units with a view to building interdisciplinary strength in its teaching and research. The proportion of revenue earned from competitively won grants and provision of services to industry has allowed the pace of development to accelerate despite falling state financial support (in real terms). Stakeholders interviewed by the Panel commented favourably on the impact to date of the changes, citing evidence of high morale and a strong collegiate atmosphere while key performance indicators showed satisfactory trends in both teaching and research. A notable issue was widespread acceptance of a new career structure with a higher bar for recruitment and progression criteria. The fact that this potentially contentious change has gained widespread support indicates that the University community is buying in to the Development Plan.

As expected, not everyone in the organization is moving at the same speed. The Panel found absolute clarity in the actions being taken by management to adopt best international practice in teaching and research but discussions with staff sometimes revealed a slight disconnect between implementation of change on the ground and a full understanding of the concepts. For example, the integrated concept of programme design and delivery based on learning outcomes; the difference between individual quality assurance measures and the development of a quality culture; the wider impact on university policies, procedures and operations of the term 'student-centred' beyond its narrow meaning in respect of teaching and learning approaches, an institutional understanding of 'internationalisation' as an integrated rather than segregated facet of operations and community experience. Another bump on the road is the goal of greater outbound student mobility while having inbuilt obstacles to exchange due to the mismatch of curricula at EMÜ with curricula at partner universities. The systemic issue of high dropout rates is regretted by all university leaders, but bold moves have not yet been initiated at national level to place a greater societal and financial value on each university place and recognition of this by applicants to Estonian HEI's.

With each new institutional accreditation cycle comes fresh and sometimes unforeseen challenges. On this occasion the Panel wishes to draw attention to the global movement within higher education institutions to lead society in best practice of eliminating prejudice and discrimination on the basis of an individual's characteristics. The Panel explored awareness among EMÜ stakeholders of unconscious bias and equality, diversity, and inclusion issues. The finding was that the term 'ethics'

was understood in the University almost exclusively to refer to issues of conformity with guidelines and codes. Recommendations are advanced for further exploration of the issue.

Looking to the future, the Panel sought to prompt the University to look beyond its 2025 targets and anticipate impediments to being a world class centre of excellence in aspects of life sciences scholarship. In this regard the Panel wishes to flag that an exclusive concentration on applied research, funded projects with narrow research goals and research consultancy to local enterprises, will inhibit EMÜ's opportunities to partner major research institutes and grow its international reputation. Provision for funding basic research needs to be considered.

In summary, the Expert Panel was impressed with the strategic management of the University and is satisfied that EMÜ continues to conform to standards, managing its affairs in a commendable fashion. Nevertheless, the dynamic world of higher education brings new societal challenges to the surface and in this regard the Expert Panel have flagged a high bar in respect of ethical standards, whereby Estonian universities need to lead Estonian society in best practice of recognizing hitherto unforeseen prejudice and discrimination. It is therefore timely to test and enhance the robustness of all EMÜ policies and procedures to deliver the highest ethical standards across its operations in the context of equality, diversity, and inclusion (EDI).

Commendations:

- Increased empowerment of the leaders of academic units to achieve University strategic goals combined with ever-increasing opportunities for interdisciplinarity through an enhanced collaborative structure
- Noteworthy increase in revenue from a range of activities, thereby reducing dependence on the state financial budget. Research, services to society and other external stakeholders, introduction of new courses and continuing education are together growing both EMÜ's finances and impact.
- Clear strategy and mechanisms to support internationalisation
- Increased provision of international postgraduate taught programmes around EMÜ's areas of excellence, which provide a steady stream of international students
- Range of activities outside the classroom to support better integration of international students.
- Positive and continually improving feedback from students regarding quality of staff performance
- Solid and well supervised practical training, mandatory in all programmes
- Laboratory courses implemented as projects where students must develop their skills on self-learning, research planning / execution and creativity
- Modular structure that provides flexibility for student curriculum and optimises use of academic staff resource
- Strong alignment of academic staff research interests and their teaching duties
- Solid procedures for regular programmes development and assessment, involving all stakeholders
- Increased number of taught courses and modules in the English language
- Teaching staff collaborate actively to define and develop assessment methods

- Well-functioning collaboration between students and specialists at the University has led to remarkable activities aimed to increase awareness and promotion of mental health. Together with increased accessibility to psychological counselling EMÜ has created a supportive environment to the whole University community.
- The very focused field of EMÜ creates a good environment for collaborations
- Priority research fields are aligned with Estonia needs, with EMÜ researchers' expertise and with the support of teaching activities
- EMÜ facilitates many and varied measures to continuously attract different parts of the society into its activities and to provide education for diverse groups, from children to entrepreneurs
- EMÜ has applied necessary measures to continuously increase the number people using their different services to society
- EMÜ´s Science School has attracted more upper secondary school students to join the university after their graduation

Worthy of Recognition:

Strategic management in the period under review has focussed on change management, with restructuring of units and academic career framework achieved without loss of staff loyalty and support, resulting in ever stronger alignment of institutional structures with its core mission, which of itself is forming the basis for embedding a stronger quality culture.

Areas of concern and recommendations:

- Raising awareness of the possible impact of unconscious bias is an area that the University may wish to explore in respect of its evolving best practice in equality, diversity, and inclusion. Ethical awareness among the University community is generally limited to issues of gender and cultural equality. Awareness of discrimination based on age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion and/or belief, sex or sexual orientation needs to be strengthened in EMÜ. It is recommended that strengthened policies and communication campaigns in respect of Equality, Diversity, and Inclusion (EDI) be actively pursued.
- It is recommended that the Academic Ethics Committee be proactive in systematically analysing trends regarding ethics-related concerns and questions in EMÜ to better inform the scope and ongoing refinement of policies and procedures in the context of EMÜ's ambition to be an internationally focused higher education institution.
- It is recommended that a single and easy to use site be created for reference to all policies, procedures and guidelines related to the multi-faceted issue of ethics in the higher education institution and community of EMÜ
- Although regular training is provided, some knowledge gaps may exist in research team members involved in managing ethical dimensions of research. It is recommended that assessment of achievement of learning outcomes at a high standard be enhanced in this respect.
- The goal set by the University that all university teachers in the position of at least a lecturer should have a doctoral degree is being underpinned by the new academic staff career

structure. Achieving this is an area that requires close attention in the next five years and the University should continue their support to facilitate lecturer grade staff to complete their PhD in a timely manner

- Notwithstanding significant progress on an academic staff career structure related to higher standards of academic qualifications, the interim issue of fixed-term contracts to Ph.D. students needs particular attention. The nature of junior research fellow fixed-term contracts, strictly as traineeships regulated by the Higher Education Act, needs to be clarified to avoid unforeseen consequences for the PhD candidates or for the University at the end of each contract. This is in the context of the strict legal interpretation of EU Council Directive 1999/70/EC of 28 June 1999 concerning the objective grounds for terminating a fixed term contract.
- Further develop mandatory staff training in respect of student-centred education and support this with an institutional communications plan to further reinforce a shared understanding among staff of EMÜ's quality culture and seek ways of demonstrating the implementation the approach with improved processes designed to support student learning
- Further develop mandatory staff training in respect the Intended Learning Outcome approach to fully harness its potential in optimising programme development and module delivery. Despite the earlier successful alignment of student assessment strategies with outcomes, there remains a suboptimal approach to designing the outcomes themselves which makes best practice somewhat patchy across the University. It is recommended that an audit be conducted across the university, mapping programme outcomes with learning outcomes of modules to identify examples of best practice to be shared in pedagogic training courses
- Seek a better fit in exchange partner curricula, mapping ECTS credits per semester such that outgoing exchange students do not need to increase the overall duration of their studies
- Modules for international students are not the same by volume and content as those for Estonian students, which is contrary to the concept of internationalising the EMÜ learning experience for both Estonian and international students. It is recommended that the current practice of different modules be phased out and the learning experience be progressively harmonised for all students, irrespective of nationality
- To enhance student learning opportunities EMÜ should continue to enhance awareness among staff of the continuous improvement process described in the Quality Management System and to follow the processes designed to support student learning - what are the minimum levels they want to achieve and what action will be taken when minima are not achieved
- A high proportion of research force is devoted to service and applied research vs. basic research, making it difficult to produce high ranking papers and may endanger the future of EMÜ as a driver of future knowledge-based solutions to societal challenges. It is recommended that the university reflect on "academic freedom" in research as a tool to promote change and, anticipating the future, consider the feasibility of establishing a resourced plan to promote outstanding creativity in research.

	conforms to requirements	partially conforms to requirements	does not conform to requirements	worthy of recognition
Strategic management	X	☐	☐	X
Resources	X	☐	☐	☐
Quality culture	X	☐	☐	☐
Academic ethics	☐	X	☐	☐
Internationalisation	X	☐	☐	☐
Teaching staff	X	☐	☐	☐
Study programme	X	☐	☐	☐
Learning and teaching	X	☐	☐	☐
Student assessment	X	☐	☐	☐
Learning support systems	X	☐	☐	☐
Research, development and/or other creative activity	X	☐	☐	☐
Service to society	X	☐		☐

Key to evidence

M: interviews with management staff

S: interviews with students

SER: Self-Evaluation Report

EMÜ - Official abbreviation, Estonian University of Life Sciences

1.1. Strategic management

Standard:

Development planning at the higher education institution is purposeful and systematic, involving various stakeholders.
The higher education institution regularly evaluates the achievement of its stated objectives and the impact of its activities.

Guidelines:
The HEI has formulated the objectives and key results for its core activities – learning and teaching; research, development and creative activities, and service to society – taking into account national priorities and the needs of society, focusing on its strengths and reducing unnecessary duplication both within the HEI and throughout higher education in Estonia.
The HEI is managed in accordance with its mission, vision, and core values, as well as objectives set out on the basis of those principles. Responsibility for implementation of the goals and action plans of the development plan are clearly specified. Achievement of the objectives and effects of the activities are evaluated regularly. Creativity and innovation are supported and given value in both core and support activities.
Membership of the HEI (including students), as well as external stakeholders, is involved in developing and implementing the HEI's development plan and action plans. The HEI members share the core values that serve as a basis for the institution's development plan.

Indicators:
- The rate of achieving the objectives set in the development/action plan (key results)
- Other indicators depending on the HEI

Evidence and analysis

Strategic planning at EMÜ is based on a clear and enduring objective. The objective of the University is the sustainable development of society and the well-being of people through internationally recognised study programmes and research. The specific EMÜ contribution is centred around the sustainable use of natural resources in the context of rural life and the rural economy on a value chain basis. Targetted strengths are in agricultural sciences, veterinary medicine (clinical training and food safety), forestry and environmental sciences. Supporting this are the facets of engineering and technology of greatest relevance to life sciences. Building on its history and focus, the University is increasingly better positioned to be an international partner in tackling current societal challenges: sustainable development and global food supply. The Expert Panel met a wide range of stakeholders and found much evidence of joined-up thinking in the management of the University's community and resources to respond to national and global needs in its sphere of expertise. The process is currently built around the Development Plan 2016-2025 and its associated annual Activity Plans.

An annual Activity Plan by strategic area is drawn up, leading to development plans for academic structural units, academic responsibility areas and the University institutions. Actions are broken down into steps which are budgeted and assigned to a point of responsibility. The process is inclusive, involving staff, students and external stakeholders before discussion at Senate and sign off by the

University Council, (SER, p.20). Accountability for performance is provided through the Annual Report, published on the University website. The 2016-2020 Activity Plan of the Development Plan included 13 indicators of which 10 reached their target. The Expert Panel noted that the goals were specific, measurable, action-related and realistic. Less evident was timing – the inclusion of interim deadlines for achievement of incremental targets in the long timeline of a Ten-Year Development Plan would help managers – but this was not an area of specific concern to the Expert Panel, given the evident swift rate of progress on significant issues since the last review.

The connecting factor of the University's activity across teaching, research and development is the bioeconomy. This is driven by the mission and vision statements ("create and share knowledge to the promoters of bioeconomy" and "internationally recognized research university in the field of bioeconomy" respectively). The previous Institutional Accreditation report (2019) noted that 'bioeconomy' was an ambiguous concept that needed a congruent institutional approach to understand its potential and a wider understanding within EMÜ. The Expert Group found that the response to this previous institutional accreditation finding has been swift and inclusive. The Development Plan 2016 to 2025 was revisited to prepare an Activity Plan 2021-2025 on a highly inclusive basis – chairs, departments and Student Union. Working groups included staff and students. Steering groups reported regularly to the senior management team on each unit's contribution to a more focussed core strategy, with measureable targets (SER, p.13). This high level of stakeholder involvement was achieved despite limitations on in-person meetings caused by the global health pandemic in 2020.The most visible change has been the restructuring of the academic units to encourage greater focus on EMÜ's objective through collaboration and reduction in duplication, both within the University and in Estonian higher education.

The University structure continues to evolve as it looks towards concentration of its resources to meet the strategic goals. Built around three former faculties of the University of Tartu in 1951 and merged with nine institutes and research centres in 1990, the first major restructuring took place in 2005. A further restructuring was implemented on 1 January 2022, built around five academic units with most staff assigned to three institutes:

- Institute of Agricultural and Environmental Sciences
- Institute of Veterinary Medicine and Animal Sciences
- Institute of Forestry and Engineering
- Language Centre
- Centre for Science Studies Carl Ernst von Baer House

The changes include the phasing out of the College of Technology, the Institute of Technology and the Institute of Economics and Social Sciences. Regarding the status of engineering and technology, the Expert Panel learned during its meeting with the Rector that closer links with Tallinn University of Technology are being forged in this respect. The Expert Panel queried the status of the Language Centre as an academic unit rather than a support unit. The separate role of the Centre for Science Studies was also examined. The Expert Panel is fully satisfied, based on meetings with the unit directors, that the revised structure of five units is appropriate for effective delivery of its teaching, research and cultural responsibilities. The rationalization of the number of institutes will of itself encourage greater opportunities for interdisciplinarity – a catalyst for creativity and innovation.

The revised structure forms part of an ongoing concentration of resources to enhance the coherence and synergy of the University's six focus areas: agriculture, environment, forestry, food and health, engineering and technology, and rural economics. The number of chairs and departments has been rationalised over recent years from 37 to 20. Greater financial autonomy has been devolved to the institutes. The Expert Group found that the university management team structure is firmly aligned with delivering on strategic goals through increasingly devolved responsibility to the three institute directors.

The purpose of restructuring the academic units and chairs is to encourage a greater focus on EMÜ's objective through collaboration and reduction in duplication, both within the University and in Estonian higher education. The Expert Panel found, through meetings with staff and external stakeholders, that there is already anecdotal evidence of effectiveness. A graduate now getting more involved with the University after an absence of several years remarked "They are happier – and they work together more!"

The Directors of the three institutes comprise half of the university management team, joining with the Rector, Vice-Rector for Research and Vice-Rector for Studies. The university management team report to the governing body ('University Council') and the academic council ('Senate'). Four of the seven members of the Council are external to the University. The Panel found in meetings with the University Council that significant external expertise is available to guide EMÜ's continued development. The Council leadership is energetic and proactive is helping the University to play a significant role in the national economy and society.

Notwithstanding EMÜ's important role in respect of the national economy and culture, the University is outward looking and is pursuing strategic goals that will enhance its international ranking metrics. The Development Plan is particularly strong on building research capacity and impact. Currently EMÜ is ranked in the range band of 51–100 in the field of agriculture and forestry (QS World University Rankings by Subject). However, overall EMÜ is ranked in the 801-1000 band (Times Higher Education). This begs the question as to the reasons why a university ranked as high as 48th (2019) in one of its core fields of excellence is not already in the top 500 of world ranked universities. The Expert Group learned in meetings with the Rector that management is cognisant of the role of rankings in internationalising the brand but that it is not attempting to chase the metrics used in rankings as an end in itself. The approach is to concentrate on building excellence in their focus areas and improved international rankings will follow. The Expert Panel applaud this approach but believe that it would be worthwhile for management to study EMÜ's performance by subject area in the metrics used by the ranking agencies to better understand the University's strengths, on which to better build their international reputation. Despite the shortcomings of the various international ranking systems, the ranking metrics are a measure of quality. Ranking by subject takes account of academic reputation (survey by academics), employer reputation, research impact (citations per paper) and h-index. The current direction of travel, articulated in the Development Plan and associated annual Activity Plans, is on the right track but the speed of progress could be accelerated by lessons learned from comparative research metrics across the University's subject areas. The future balance between basic and applied research needs to be considered at a strategic level. This is further discussed in Section 1.11.

The University has five core values built around an objective and ethical approach to fostering a sustainable and environmentally-friendly way of thinking based on the principles of academic

freedom, equal opportunity, tolerance and academic curiosity. Inextricably linked to this is the preservation and development of the Estonian national culture through the sustainable development of Estonia, by providing high-quality research, education and service to society. The Panel found through its meetings with stakeholders that the working environment for students and staff was collegiate and respectful of the individual. Less evident to the Panel was the extent to which the core values of equal opportunity and tolerance have been tested in practice against recent international societal changes. This is discussed further in Section 1.4.

Strategic management is supported by the University Quality Management System. The system is based on the plan, do, measure, modify cycle of quality improvement. From January 2020, the University employed a Quality Manager and the 2005 University quality management system (criticised in the Institutional Accreditation Report 2019) was redeveloped and documented in the spring of 2021 (SER, p. 15). The Panel held a meeting with the EMÜ evaluation coordinator, a quality consultant, and learned that this aspect of strategic management is well understood although there may be issues with vocabulary as the development of quality culture permeates through the layers. This is discussed further in Section 1.3.

Ten support units exist under the new structure. Eight 'departments' serve the administrative needs. The other units are the Library and the Open University (lifelong learning courses offered through access to current modules of the study programmes). The ratio of academic to support staff is 1:1 with 493 academics out of 986 employees (SER, p.11). While this ratio is typical of many universities, especially life sciences departments with a need for many technical staff, the Expert Panel recommend that administrative processes and procedures be examined to ensure that administrative support service to the university community is as agile as possible, exploiting technology if helpful.

Growth targets for the Open University are not specifically mentioned in the Teaching and Studies section of the Activity Plan 2021-2025. Neither is the issue of addressing the high number of dropouts. The Expert Panel accept that the University is doing its best to reduce the number of dropouts and that certain factors are beyond its control. Flipping the question around, the Panel was interested in a comment from academic staff that there should be an equal focus on measures that attract sudents back to the university to continue and complete their interrupted studies.

Conclusion

EMÜ conforms to requirements in respect of the Strategic Management standard.

It is clear that the correlation between objective, mission, vision and core values is strong and easily communicated to the University community and wider society. The current Development Plan (2016-2025) was revisited following recommendations in the Institutional Accreditation report of 2019. Success was achieved in respect of stakeholder involvement in this additional planning cycle, despite limitations on in-person meetings caused by the global health pandemic in 2020. The resulting Activity Plan (2021-2025) included significant changes to the university structures, and it is impressive that these have already been rolled out. The changes are leading to greater empowerment of a reduced number of academic units (three institutes, a language centre and specialist centre for science studies) to deliver EMÜ's strategic goals through greater autonomy. Meanwhile strong connections are maintained between the strategic and operational leaders through the structure of the compact university management team, half of the members being directors of the three major institutes which represent the engine for growth in EMÜ's excellence.

The number of chairs has been rationalised from 37 to 20. This concentration of resources is enhancing the coherence and synergy of the strategic management of the University's six focus areas: agriculture, environment, forestry, food and health, engineering and technology, and rural economics. The new structures are clearly a blueprint for a relatively small university (in international terms) to develop world-class excellence in specialist fields of Agricultural and Environmental Sciences, Veterinary Medicine and Animal Sciences. Less evident is the role of engineering in Forestry and Engineering. In respect of resources being committed to engineering, these are being directed to niche areas such as wood technology and hydrology. It is reassuring to find that wider engineering fields are being supported by ever-increasing collaboration with Tallinn University of Technology. This represents the correct direction of travel in respect of national investment in expertise and concentration of effort into centres of excellence. The revised structure of five units is appropriate for effective delivery of EMÜ's teaching, research, and cultural responsibilities. The rationalization of the number of institutes will of itself encourage greater opportunities for interdisciplinarity – a catalyst for creativity and innovation.

The University has five core values based on four principles: academic freedom, equal opportunity, tolerance, and academic curiosity. The working environment for students and staff is collegiate and respectful of the individual. However, the extent to which the core values of equal opportunity and tolerance have been tested in practice is limited. Training to raise awareness of the possible impact of unconscious bias is an area that the University may wish to explore in respect of its evolving best practice in equality, diversity, and inclusion.

Strategic management is supported by the University Quality Management System. The link between interconnected actions at a strategic level and the development of an embedded quality culture is increasingly understood at senior levels in the organisation but there may be issues with vocabulary as the development of a quality culture permeates through the layers.

Ten support units exist under the new structure. The ratio of academic to support staff is 1:1. While this ratio is typical of many universities the administrative processes and procedures could be examined to ensure that service to the university community is as agile as possible.

Strengths

- Agile and systematic response to previous institutional accreditation findings, resulting in ever stronger alignment of institutional structures with its clear objective, mission, vision, and core values, which of itself is forming the basis for embedding a stronger quality culture
- Increased empowerment of and responsibility on the leaders of academic units to achieve University strategic goals combined with ever-increasing opportunities for interdisciplinarity through an enhanced collaborative structure.

Opportunities for further improvement

- As part of the current restructuring, the administrative processes and procedures could be examined to make the future service to the university community as agile as possible, in the context of emerging technological solution opportunities

1.2. Resources

Standard:
The higher education institution develops its staff and manages its physical and financial resources in a purposeful, systematic and sustainable manner.
Internal and external communications of the higher education institution (including marketing and image-building) are targeted and managed.
Guidelines:
The HEI has an efficient staff development system in terms of both academic and support staff. The principles and procedures for employee recruitment and development are based on the objectives of the HEI's development plan and are fair and transparent. The principles for employees' remuneration and motivation are defined, available to all employees, and followed.
Allocation of the HEI's financial resources is based on the objectives of its development plan. The management and development of its infrastructure (buildings, laboratories, classrooms, IT systems, etc.) are economically feasible. Sufficient resources are available for updating the infrastructure for education and research, and/or a strategy exists enabling the HEI to acquire them.
The HEI has a functioning system for internal and external communications, relevant to the target audiences. The information made public about HEI's activities (including study programmes) and the findings of external evaluations is correct, up to date, easily accessible and understandable. The HEI has a system to popularise its core activities and academic career opportunities. The HEI members are informed of the decisions relevant to them in a timely manner.
Employee satisfaction with management, working conditions, information flow, etc., at the HEI is surveyed regularly and the survey results are used in quality improvement activities.

Indicators:
- Distribution of revenues and costs
- The results of the staff satisfaction survey
- Other indicators depending on the HEI

Evidence and analysis

The Expert Panel gathered evidence in respect of human resource development, financial resource allocation and management, infrastructure quality and maintenance, and the effectiveness of internal and external communications.

In respect of human resources, there is a clear regulatory framework for recruitment and staff development, which was also confirmed through interviews with both academic and support staff. The recruitment process is transparent and inclusive, via public competitions conducted to relevant regulations and legislation. Positions for academic and non-academic jobs are advertised through internal and external outlets, including national newspapers and job search portal CV Keskus (SER, p.22). Greater use of international portals specialising in academic positions may be useful to consider in the future.

The 'personnel development system' (SER, p.22) provides a clear framework for staff performance reviews and training. There has been a variety of courses with 4,300 participants having attended such events over the last five years (SER, p.23). The relationship between monitoring staff performance and promoting staff development is a structured conversation leading to a documented performance review questionnaire, which leads into a five-theme analysis from which the Personnel Department put together an individual's development plan.

Concerns were raised surrounding the implementation of the new career model following the policy of restructuring the academic grades, with all lecturers needing to have a PhD to continue, particularly what happens to those that do not have a PhD by their next evaluation. Interviews with staff highlighted differing interpretations of this criterion. Some of the interviews with staff highlighted that this criterion is not clear. This is further discussed in Section 1.6.

The Panel learned that (SER, p.39) the University offers PhD students fixed term junior research fellow positions enabling them to apply after postdoc for positions of assistant professors, the first career level of the professor (SER, p.39). The Panel queried the nature of these fixed-term contracts in the context of EU Council Directive 1999/70/EC of 28 June 1999 concerning the framework agreement on fixed-term work. The answers received were not reassuring in respect of possible unforeseen consequences of this well-intentioned recruitment procedure. On the one hand, candidates may be given an expectation that their application to a competitive vacancy at assistant professor level will receive favoured status over external candidates. On the other hand, the University may find itself forced to offer unsuccessful internal applicants for assistant professor posts a contract of indefinite duration as a junior research fellow at the end of their post-doctoral period. It would be wise for the University to clarify any unforeseen accrual of employment rights in these fixed term contracts if the junior research fellow positions are other than training contracts.

Staff satisfaction surveys are conducted. Participation rate is satisfactory, at 50.1% in 2020, increased from 31.9% in 2017. The recent survey found that all the relevant indicators are on an upwards trend. The University target for a minimum of 80% employee satisfaction with the quality of working life was exceeded, reaching 90% (SER, p.22). This high value is noteworthy, as is the wider staff engagement with the survey. Satisfaction with work relationships is the highest (5.21 on a 6-point scale) which bodes well for interdisciplinary developments in the work environment. This builds on the recent restructuring, which offers increased opportunities for collaboration, as was confirmed through interviews with representatives of academic units.

Less well performing indicators are satisfaction with recognition and satisfaction with remuneration. The University has responded with initiatives to address this. Measures to increase satisfaction with recognition include the recent establishment in 2021 of a statute of Colleague Prize and Month of Appreciative Leadership (SER, p.24). Remuneration policies were updated in 2019, with the minimum salary increasing by 6% on average, and again in 2021 towards a goal of achieving an average salary level equivalent to the average “of four Estonian universities by 2025” (SER, p.23).

In respect of financial resource allocation and management, there is a clear framework of procedures and regulations for the operational budgets and respective financial resources, presented in the annual report. University funds are carefully monitored and audited. Transparency was aided by the 2020 introduction of declarations of ‘conflict of interest’ for different stakeholders along with the associated internal audits which followed.

Prudent financial management is reflected in a 27% increase in annual revenue from 2016 to 2020 (to €33 million) while expenditure remained stable. Notably revenue from research increased by nearly 50%, while sales of goods and services increased by 31%. There was an 11% increase from educational activities, where a less than 2% increase in state-allocated activity support (reduction in student numbers nationally) was compensated by a 63% increase in other university-related study contracts and continuing education. The latter is being successfully developed as a growth area.

Budget allocation to academic units represented 74%, on the expenditure side. The funds are distributed to the Chairs based on workload from student numbers and funded research projects with a 10% overhead levy for the Institute to use for infrastructure development. Chairs distribute funds down to heads of research or study programmes. Institute budgets derive from three main income sources: state education budget, tuition fees, research services. Research funding is growing well but the state education budget has not increased in seven years.

The Expert Panel learned in meetings with management that the rectors of several universities have yet to sign off on future work agreements with the Ministry pending negotiations on finances. The Expert Panel caution against any temptation to identify cost savings made during the Covid pandemic restrictions on face-to-face teaching, laboratory classes and cancelled field trips as ongoing annual expenditure reductions. The relative shortfall in state funding must not be allowed to jeopardise essential student-centred activities.

In respect of infrastructure quality and maintenance, the University has developed excellent teaching and research facilities. External agreements with other partners, such as Tallinn University of Technology for civil engineering education further enhances access to resources for teaching and research. Investment in IT systems and research equipment currently amounts to 4-7% of the budget. Library resources are funded by the University, the state, and the Estonian consortium of libraries. There is a large selection of physical books, papers, digital archives, e-databases, and datasets, comparable with the expected standard of a modern HEI. The library has facilities for staff and student training courses and for exhibitions.

Maintenance of such high-quality infrastructure is challenged by the amount of central funding. One of the main changes from previous practice has been the establishment of a depreciation fund, essential for the maintenance of research equipment to adequately support the student experience. The Expert Panel learned in meetings with management of the systematic measures for deciding how the fund can be accessed by the Institutes.

In respect of communications, there are effective communication channels for both internal communication within the institutions as well as externally for marketing purposes. Over time the development of numerous social media platforms in addition to the organic growth of website material and overloading of e-mail inboxes can make it difficult to ensure that key messages reach target audiences. As with all large organisations, the University might consider introducing protocols to help ensure that messaging is more targeted in an increasingly noisy virtual world.

The Expert Panel found the University website to be well designed as the main route for reaching out to the public, potential collaborators, and prospective students. Other scientific portals nationally and internationally are also employed for raising awareness of EMÜ research. The University has a strong presence across popular social media platforms. There is a Department of Marketing and Communication who participate in national and international educational fairs, as was confirmed by the interviews with the relevant teams. They also gather market research feedback to identify how the University is viewed on the Estonian market, student barometer, people's views on EMÜ, etc

Internal communication follows the standard channels expected in a HEI (emails, intranet, study information system, document register), along with an increasing use of social media and EMÜ magazine. Moving from the level of the HEI to the level of separate departments, it would be useful to follow a similar approach, highlighting strengths or unique areas of expertise of the thematic areas.

The Expert Panel learned in meetings with staff that e-mail Inboxes were sometimes swamped with messages from students, colleagues, departments, and management. The result was that important strategic developments in the University announced in broadcast messages were lost in the backlog that built up when staff attended to more urgent operational requests specifically addressed to their individual responsibilities.

Conclusion

EMÜ conforms to requirements in respect of the Resources standard.

There is a clear regulatory framework for recruitment, staff development and staff performance reviews. The relationship between monitoring staff performance and promoting staff development is supportive, with a documented performance review leading to a tailored development plan for each academic. Participation in staff satisfaction surveys is good and a recent survey found that all relevant indicators are on an upwards trend. The employee satisfaction with the quality of working life, rated as 90%, is impressive and reflects the positive attitude of all staff as conveyed in meetings with the Panel during the site visit. Satisfaction with work relationships was ranked highest which bodes well for interdisciplinary developments in the work environment. Less well performing indicators are satisfaction with recognition and satisfaction with remuneration. The University management are responding with initiatives to address this. There is some concern among a small number of current lecturers surrounding the implementation of the new career model following the policy of restructuring the academic grades. While endorsing fully the management's ambitious programme of reform, a targeted communication project on the relationship between the criteria for appointment and the University strategic goals in an ever more competitive international environment may be warranted.

An aspect of human resources is that the University offers PhD students fixed term junior research fellow positions enabling them to apply after postdoc for positions of assistant professors. The nature of these fixed-term contracts in the context of EU Council Directive 1999/70/EC of 28 June 1999 concerning the framework agreement on fixed-term work needs to be clarified to avoid unforeseen consequences for the employees or the University at the end of the fixed-term contract.

The framework of procedures and regulations for the operational budgets is clear and consistent with incentivising achievement of strategic goals. The 27% increase in annual revenue from 2016 to 2020 (to €33 million) reflects the University's success in managing its destiny: revenue from research increased by nearly 50%, helping to offset very low rates of increase in the state education budget in this period.

The quality of infrastructure is excellent. External agreements with other partners further enhance access to resources for teaching and research. Investment in IT systems and research equipment is receiving targeted support. A depreciation fund has been established for maintenance of research equipment.

The University website is well designed. Internal and external communication channels are mostly effective. Nevertheless, some overload of staff e-mail Inboxes was reported. The effect is that staff sometimes overlook important university broadcast messages while they deal with day-to-day operational matters. This is not unique to EMÜ but requires some local rethinking in respect of e-mail protocols and internal communication strategies. Equally, more targeted use of social media for

communicating with exernal stakeholders will become important as fatique builds up in the community with the current indiscriminate platforms that do not distinguish between frivolous and important topics, nor validate the accuracy of content.

Strengths

- Recent restructuring has had a positive influence on satisfaction with work relationships, has increased collaborations in teaching and research, which have contributed to increase in revenues
- The recently established *Statute of Awards and Recognition* in 2021, to highlight excellence in different activity areas, can be regarded as an important motivator and increases staff/unit visibility across EMÜ
- Noteworthy increase in revenue from a range of activities reducing dependence on the state financial budget. Research, services to society and other external stakeholders, introduction of new courses and continuing education are growing EMÜ's finances and impact
- Collaboration agreements with external partners for use of external infrastructure and to increase use of local infrastructure

Areas of concern and recommendations

- The nature of junior research fellow fixed-term contracts, strictly as traineeships regulated by the Higher Education Act, needs to be clarified to avoid unforeseen consequences for the PhD candidates or for the University at the end of the contract. This is in the context of the strict legal interpretation of EU Council Directive 1999/70/EC of 28 June 1999 concerning the objective grounds for terminating a fixed term contract.

Opportunities for further improvement

- Further develop, or at least do not curtail, the funding of student-centred activities around field trips and related field activities once the Covid-19 travel restrictions are eased
- Aim to make field stations and similar research and teaching infrastructure self-sufficient where possible
- Highlight strengths and unique selling points of the different Institutes and departments on the website as possible resources for funded industry collaboration
- Improve e-mail communication protocols for staff and use of social media channels for the external audiences so that employees and external stakeholders get more targeted messaging and less indiscriminate noise in the virtual communication world
- Expand the mechanism of recruitment of staff beyond standard channels to include international portals specialising in academic positions and other international resources as appropriate
- Strategic planning of internal communication as part of knowingly developing and shaping the desired quality culture across HEI

1.3. Quality Culture

Standard:
The higher education institution has defined the quality of its core and support processes, and the principles of quality assurance.
In the higher education institution, internal evaluation supports strategic management and is conducted regularly at different levels (institution, units, study programmes).
The findings of internal and external evaluations are analysed, and quality improvement activities implemented.

Guidelines:
Members of the HEI have agreed upon definitions for the quality of their core and support processes and are guided by them in their daily work. The HEI has established its policies and procedures for internal quality assurance (internal evaluation). The regular internal quality assurance both at the institutional and study programme level takes into account, inter alia, the standards set out in these Guidelines. All members of the HEI, including students and external stakeholders, participate in internal evaluations.
Internal evaluation of study programmes results in feedback from experts within the HEI and/or from outside it. Regular reviews and enhancements of study programmes ensure their relevance, including their compliance with international trends. In the course of internal evaluations, peer learning, comparisons with other HEIs regarding their results and means for achievement, as well as a sharing of best practices take place, among other things.
Internal evaluation is based on the following key questions in quality management: What do you want to achieve, and why? How do you want to do it? How do you know that the activities are effective and will have the desired impact? How do you manage the quality improvement activities?

Indicators:
- Improvement activities implemented based on the analyses of internal evaluations in the HEI's core and support processes (examples from different areas)
- Other indicators depending on the HEI

Evidence and analysis

The definition of quality and principles of quality assurance at EMÜ has been established by a Rector's directive on a quality management system. The Expert Panel informed its analysis of the quality culture at EMÜ, and compliance with the standard, through interviews with students, staff, senior staff, external stakeholders, and Council members. The interview process explored how the system operates from the perspective of staff, students and stakeholders, triangulating evidence to confirm the effectiveness of the system. Further evidence was provided in the SER, particularly Section 3.3 but also through the inclusion of quality related commentary across other sections of the SER. Furthermore, Section 4 of the SER, Curriculum Self Evaluation, provided evidence of the presence of a quality culture in study programmes at bachelor's, master's, and doctoral level.

The Quality Management System description provides a comprehensive overview of the aims, operations and intended outcomes of quality management at EMÜ. Quality management is described as a system of regular monitoring, measurement, analysis and evaluation of processes and outcomes. The Estonian *University of Life Sciences quality management system* provides clear evidence that EMÜ recognises the Standard and incorporates its expectations within its approach. The Quality

Management System was developed and documented in the spring of 2021 in partnership with staff and external stakeholders.

The system, as a relatively recent development, has an understandable focus on process compliance and the avoidance of non-conformity. Feedback systems are described in the quality document illustrating how feedback from internal and external university stakeholders had been incorporated in the development of EMÜ's research and teaching.

The discussion with staff allowed a better understanding to emerge for us as the Expert Panel of how the system could develop and support a culture of quality management and enhancement. The interviews explored the extent to which staff have had the opportunity to have meaningful engagement in its development and have been trained in its operation. Staff interviews indicated that whilst quality management was understood as a principle and in practice some of the terminology and process steps were not as clearly understood. Staff training and internal communication systems could address this and help shift the quality management system from a compliance model towards an enhancement process.

The quality management system is supported by a risk assessment process where assessment of risks informs and structures university decision making options. The interviews explored how the University assured itself that the curriculum assessment process is implemented in a consistent manner and how differences of interpretation or application will be addressed. Examples of where curricula have been developed or reviewed in partnership with external stakeholders were highlighted in the interviews illustrating how stakeholder views have shaped the curriculum.

The accreditation process has confirmed that EMÜ through its Quality Management System documentation has defined the quality of its processes and set out the principles of quality assurance that apply to the institution.

As outlined in Section 1.1, strategic management is increasingly supported by the redeveloped quality management system. Additional resources have been provided to develop the University's quality culture in response to criticism in the previous Institutional Accreditation Report (2019). The redeveloped Quality Management document sets out the principles, definition, and approach to the management of quality including the principles of the university's internal evaluation. The SER describes how internal evaluation at different levels of the organisation is regularly applied and how the outcomes are used to support the development of research and teaching activities. The approach is set out in the university's "*Internal assessment principles for Estonian University of Life Sciences.*" Students and external stakeholders are participants in the internal evaluation process. The university introduced a new approach to curriculum development in 2018 since when all curricula have been updated to reflect these requirements, especially learning outcomes. From 2021 the university has implemented an assessment of objectives and quality of curricula. This is supported by new assessment paperwork seeking information that, in turn, will allow an assessment of curriculum performance against a basket of internal and external quality indicators. Again, this system is still relatively youthful, and its operational impact will need to be the subject of ongoing evaluation by EMÜ. The role and extent to which staff and other stakeholders were able to contribute to it development was explored in interviews. These provided examples of staff and stakeholder engagement in the process alongside contributions from students. The SER identified the need for further staff training opportunities to be provided and this was confirmed in interview discussions.

The accreditation process has confirmed that EMÜ conducts regular internal evaluations of different entities, the outcome from which supports strategic management of the university.

The accreditation process has confirmed that the findings of internal and external evaluations are analysed, and quality improvement activities implemented.

Conclusion

The accreditation process confirms that EMÜ conforms to the requirements set out in the Standard for Quality Culture.

The original (2005) Quality Management System was redeveloped and documented in 2021 in partnership with staff and external stakeholders. The Quality Management document sets out the principles, definition, and approach to the management of quality including the principles of the university's internal evaluation. Internal evaluation at different levels of the organisation is regularly applied and the outcomes are used to support the development of research and teaching activities. Assessment of objectives and quality of curricula is supported by new assessment paperwork seeking information that, in turn, will allow an assessment of curriculum performance against a basket of internal and external quality indicators. This system is still relatively youthful, and its operational impact will need to the subject of ongoing evaluation by EMÜ to ensure that the 2021 iteration can be systematically applied in future years without significant updating. Further staff training opportunities will most likely be required.

Strengths

- The way the University's development and improvement decisions are based on feedback and assessment

Areas of concern and recommendations

- Further develop mandatory staff training in respect of student-centred education and support this with an institutional communications plan to further reinforce a shared understanding among staff of EMÜ's quality culture and seek ways of demonstrating the implementation the approach with improved processes designed to support student learning

Opportunities for further improvement

- Use the internal communication system to further enhance the training offered in Quality Management processes in respect of developing a shared understanding of EMÜ's quality culture
- Notwithstanding compliance with current national requirements, the University may wish to consider enhancing staff engagement in Quality Management through specific outsourced quality training programmes emphasising development of quality culture in organisations

1.4 Academic ethics

Standard:
The higher education institution has defined its principles for academic ethics, has a system for disseminating them among its members, and has a code of conduct including guidelines for any cases of non-compliance with these principles.
The higher education institution has a functioning system for handling complaints.

Guidelines:
The HEI values its members and ensures that all its employees and students are treated according to the principle of equal treatment.
Employees and students of the HEI are guided by the agreed principles of academic ethics in all their activities.
The HEI respects fundamental values and policies of research set out in the document, 'Research Integrity', issued jointly by Estonian research institutions, the Estonian Academy of Sciences, the Estonian Research Council and the Estonian Ministry of Education and Research.

The HEI supports its students and teaching staff in their understanding and responding to ethical issues. Teaching staff and students do not tolerate academic fraud, including cheating and plagiarism, and they will act immediately upon any such occurrence.

Management of complaints from HEI members (including discrimination cases) is transparent and objective, ensuring fair treatment of all parties.

Indicators:

- The percentage of student papers checked by plagiarism detection systems and the percentage of detected plagiarisms

- Other indicators depending on the HEI, for example statistics about complaints (total number, the proportion of decisions taken in favour of the applicant)

Evidence and analysis

Further to recommendations concerning academic ethics in the 2019 Institutional Accreditation report, EMÜ established an Academic Ethics Committee in 2021 to deal with cases previously dealt with by the Senate Academic Committee. The recommendations included integration of all relevant ethical dimensions into regulations in the field of education, framing of the assurance of equal treatment more specifically in policies and guidelines, formulation of clear ethic principles on academic freedom and obligations, and to ensure their dissemination among all members of the University. The Senate Regulation "Good Academic Practice and Implementation of Principles of Academic Ethics in Estonian University of Life Sciences" was updated in 2020. A seminar "Good practice" about integrity and good academic practice was organised in 2020 to discuss and implement the updated regulation and was attended by 70 employees. An action plan for gender equality and guidelines for equal treatment has been developed and published in a prominent position on the University website.

The updated Senate Regulation delineates the basic principles of academic ethics and the procedure for handling violations in the University. The previous regulation was supplemented with standards of conduct (SER p. 30). The Senate Regulation describes the system for developing common ethical principles and sharing knowledge in the field of ethics. It also sets out the role of the newly formed Academic Ethics Committee.

The Academic Ethics Committee consists of staff of various fields and positions in EMÜ, students, an external member, and an ethics advisor of extensive experience from the University of Tartu. Its main tasks include introduction of the principles of academic ethics in EMÜ and to prevent and resolve issues related to misunderstanding or violation of principles of academic ethics that have arisen or may arise (SER p. 30). During the staff interviews and in the additional data requested by the Panel, the role of the Academic Ethics Committee was elucidated. The Committee works on *ad hoc* basis when complaints or suspicions arise. The Committee has held 14 meetings on seven complaints or suspicions since September 2021. Although the Committee has discussed a range of topics related to ethics as well as the results of the Senate's previous work and seminars advancing academic ethics (e.g., authorship in university context), the Expert Panel considered its *modus operandi* to be more reactive than proactive. In a response to this comment EMÜ acknowledged that the operating period to date of the Academic Ethics Committee was very short at the time of the Expert Panel's evaluation but stated that "analyses are in progress and the plans for the seminars/trainings as input into the proactive phase will be provided." The Expert Panel stress that to enhance awareness and operationalisation of its academic ethics system EMÜ should adopt a proactive approach to embedding ethical awareness in all facets of its operations.

Procedures for submission and processing complaints is provided in the Rector's Directive "Procedure for processing proposals and complaints" (20.04.2020), which covers harassment, work related harassment and discrimination alongside issues related to work organisation, occupational safety, corruption, misuse of University property, etc. This procedure lists the areas and responsible bodies/persons for processing proposals and complaints. All the University employees and students have the right to submit a proposal or complaint. The procedure for this is outlined in the Rector's Directive "Procedure for processing proposals and complaints". If the person wishing to submit a proposal or a complaint is unable, due to objective reasons, to inform the person or body referred in the "Procedure for processing proposals and complaints", he or she has the right to submit the proposal or complaint to the Internal Auditor.

The rules for dealing with disagreement from the student's perspective with a grade awarded is covered in the Study Regulations (SER, p. 54). A student's disagreement regarding the grade awarded for an assessment can be processed through a procedure outlined in the Study Regulation, Chapter 10. The Panel found in meetings that some stakeholders were uncertain as to whether on not this was a distinct 'assessment appeal' procedure or if it was covered as part of the wider 'complaint process'.

The Committee has noted that cultural differences i.e., customs and behaviour due to different cultural norms and their different interpretations, are one reason for ethical confrontations. Seminars have been organised to introduce information on cultural norms of various countries to students as a step in overcoming problems between people from different cultural backgrounds. The University developed an action plan on gender equality in the autumn of 2021. The EMÜ aims to pay more attention than before to promotion of gender equality (SER p. 33) but consideration of other aspects, such as nationality, age, and religion, were not mentioned in SER. During the staff interviews, the

Expert Panel found that there was little familiarity with the term 'EDI' (Equality, Diversity, and Inclusion). Ethical awareness was generally limited to issues of gender and cultural equality. In a response to this finding EMÜ commented that ethical awareness and framing of the EDI principles and related guidelines was in preparation at the time of the Institutional Accreditation review. New guidelines (2022) have been issued which set out 13 bases on which unequal treatment will constitute discrimination.

Awareness of discrimination based on age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion and/or belief, sex or sexual orientation needs to be strengthened in EMÜ. As mentioned in Section 1.1, the extent to which the EMÜ core values of equal opportunity and tolerance have been tested in practice is somewhat limited in respect of recent international societal change. Unconscious bias, by its nature, is difficult to recognise let alone address. This is an area that the University may wish to further explore in respect of evolving best practice in equality, diversity and inclusion across international universities. It is not unusual for an internationally-respected university to be a leader rather than a follower in these matters as part of its service to society.

The University commented that it has consciously built the systematic collection and feedback on ethics related data and is developing its implementation. To link the informal and formal information systems and ensure effective feedback, the institutes have established a cohort of authorised staff whose role is to advise and support the membership of the institute in resolving issues of academic ethics (SER p. 31). To support the collaboration of members of the Academic Ethics Committee and the authorised employees of the institutes in identifying problems of academic ethics and preventing violations, joint courses and trainings have been conducted with the staff of the University of Tartu Ethics Centre. The Expert Panel discussed this and found it to be useful but inadequate. Systematic collection of data is not yet harnessed enough - in meetings with staff they did not actually show or discuss how they go further from collecting this data towards using it and making a change, i.e., from collecting to analysing to specific actions leading to refinement of procedures in EMÜ.

The University is implementing ethics in research, demanding experimental animals through permits applied from the National Board of Animal Experiments of Estonian Ministry of Rural Affairs. For human research or other research containing personal data, the Research Ethics Committee of the University of Tartu is addressed. All PhD students, irrespective of programme, must pass a course on research ethics including aspects of ethics permissions (research on animals and humans). In the "Animal Science" master's degree programme, the ethics of animal experiments is covered in the subject "Research methodology and study design in animal science". The Expert Panel found, in discussions with relevant Ph.D. students that their knowledge of the permission process was perfectly good. However, there was evidence of a knowledge gap among some master's degree students which may indicate a need to review the effectiveness of the learning process for certain students in respect of selected learning outcomes of relevant modules.

They had little knowledge of required permission from external bodies when conducting animal and human experiments, nor the principles and criteria governing harm level for the animal, security, and confidentiality of personal data etc.

The University regularly organises training and seminars on intellectual property and guidelines.

It is not clear whether EMÜ assures all the premises for the responsible conduct of research, starting from national and EU legislation down to the management and application of ethically sustainable methods for data acquisition and data protection, research and evaluation, publishing results in a responsible way. The Expert Panel are concerned that some gaps may exist in research team members involved in managing ethical dimensions of research from permissions through to publication and eventual disposal of personalised data. Greater scrutiny of the effectiveness of procedures in practice and accountability is warranted by EMÜ.

Issues concerning academic ethics in studies are regulated by Study Regulations, Requirements and Procedure for Awarding PhD Degrees, Requirements and Procedure for Awarding Master's Degree and other documents regulating educational activities. The University has applied a software-based plagiarism detection system since 2017 and the number of cases of academic fraud has gone down. There is an increase in its use by the lecturers. The ethical awareness of students has apparently risen. It is clear that implementation and active use of the plagiarism detection systems have certainly contributed to a reduction of plagiarism. However more opportunities for academic fraud can occur in connection with distance learning - five cases were detected in 2020/2021 during the COVID-19 pandemic period of off-campus assessment. Universities worldwide need to consider more ways of detecting fraud during online courses if online assessment becomes mainstream practice.

Conclusions

Based on the analysis, the panel finds that the academic ethics partially conforms to requirements.

EMÜ established an Academic Ethics Committee in 2021 to deal with cases previously dealt with by the Senate Academic Committee. The Senate Regulation "Good Academic Practice and Implementation of Principles of Academic Ethics in Estonian University of Life Sciences" was updated in 2020. A related information seminar was well attended. An action plan for gender equality and guidelines for equal treatment has been developed and published in a prominent position on the University website.

The Academic Ethics Committee consists of staff of various fields and positions in EMÜ, students, an external member, and an ethics advisor of extensive experience from the University of Tartu. The Committee is meeting regularly but the Expert Panel considered its *modus operandi* to be more reactive than proactive.

Procedures for submission and processing complaints is provided in the Rector's Directive "Procedure for processing proposals and complaints". This covers harassment, work related harassment and discrimination alongside issues related to work organisation, occupational safety, corruption, misuse of University property, etc. Complaints may alternatively be directed to the Internal Auditor if there are objective reasons for the complainant to bypass the other route. Student disagreement with a grade awarded in an assessment can be processed through a procedure outlined in the Study Regulation, Chapter 10. The Panel found in meetings that some stakeholders were uncertain as to whether on not this was a distinct 'assessment appeal' procedure or if it was covered as part of the wider 'complaint process'.

The Expert Panel found that there was little familiarity with the term 'EDI' (Equality, Diversity, and Inclusion). Ethical awareness was generally limited to issues of gender and cultural equality. EMÜ

commented that ethical awareness and framing of the EDI principles and related guidelines was in preparation at the time of the Institutional Accreditation review.

The Expert Panel are concerned that, despite availability of regular training sessions, some knowledge gaps may exist in research team members involved in managing ethical dimensions of research. This refers to the full cycle of seeking permissions through to publication and through to eventual disposal of personalised data. Enhanced training in this respect is warranted, particularly at master's degree research level.

Implementation and active use of the plagiarism detection systems has reduced plagiarism. However, universities worldwide should consider further measures of detecting fraud if online courses also involve online assessment.

Areas of concern and recommendations

- Ethical awareness among the University community is generally limited to issues of gender and cultural equality. Awareness of discrimination based on age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion and/or belief, sex or sexual orientation needs to be strengthened in EMÜ. It is recommended that strengthened policies and communication campaigns in respect of Equality, Diversity and Inclusion (EDI) be actively pursued.

- The Academic Ethics Committee systematic collection of data is not yet harnessed enough to analyse trends and develop specific actions leading to change. It is recommended that the Committee be proactive in systematically analysing trends regarding ethics-related concerns and questions in EMÜ to better inform the scope and ongoing refinement of policies and procedures in the context of EMÜ's ambition to be an internationally focused higher education institution.
- Although regular training is provided, some knowledge gaps may exist in research team members involved in managing ethical dimensions of research. It is recommended that assessment of achievement of learning outcomes at a high standard be enhanced in this respect.
- Create a single and easy to use site for reference to all policies, procedures and guidelines related to the multi-faceted issue of ethics in the higher education institution and community of EMÜ

Opportunities for further improvement

- Consider better publicising to students the mechanisms and processes for appealing an academic outcome, integrated with a review of the consistency of staff advice to students as and when required
- The proactive role of the Academic Ethics Committee should be strengthened.

- The need to awareness of the possible impact of unconscious bias is an area that the University may wish to explore in respect of its evolving best practice in equality, diversity, and inclusion.

- Consider, in collaboration with universities worldwide, enhanced means of discouraging and detecting fraud associated with greater reliance in the assessment process of e-resources, especially in online assessments

1.5 Internationalisation

Standard:
The higher education institution has set objectives for internationalisation and assesses the attainment of these objectives regularly.
The higher education institution has created an environment that encourages international mobility of students and teaching staff, supporting the development of learning, teaching and RDC activities, as well as the cultural openness of its members and Estonian society in general.

Guidelines:
The HEI creates opportunities for international student exchanges by offering study programmes and/or modules taught in English. The learning environment at the HEI supports internationalisation and cultural openness.
Recognition of qualifications and recognition of prior learning and work experiences for student admission and programme completion are in accordance with the quality requirements set by the HEI, are systemic and consistent with the expected learning outcomes and support international student mobility. The organisation of studies at the HEI facilitates student participation in international mobility (e.g., study programmes enable mobility windows). The HEI has agreements with foreign higher education institutions and, through international exchange, sends its students abroad to study and undertake internship, providing comprehensive support for this. Members of the teaching staff encourage students to participate in international mobility.
International lecturers participate in the process of teaching, including supervision of doctoral theses. The HEI supports and recognises the participation of its teaching staff in international teaching, research or creative projects, as well as their teaching, research or creative work and personal development which are performed at HEIs abroad.

Indicators:
- Teaching staff mobility (in-out)
- Student mobility (in-out)
- Other indicators depending on the HEI, for example:
  - Number of English-taught study programmes by main units and levels of study
  - Percentage of foreign students (by study programmes, levels of study, in total in the HEI)
  - Percentage of study programmes that include English-taught subjects (of at least 15 ECTS)
  - Number of ECTS acquired through external mobility

Evidence and analysis

The goals of internationalisation in education, research and development are established in the University Development Plan (2016-2025). This is also reflected in an administrative agreement between EMÜ and the Estonian Ministry of Education and Research. The related activities are monitored, assessed, and presented in the EMÜ annual report.

The previous accreditation report (2019) provided a clear roadmap for internationalisation through three key areas:
(i) better integration of international and Estonian students to promote societal cultural openness;
(ii) a plan for increasing instruction in English, and
(iii) internationalisation in its various forms to reach all students and academic staff.

This section assesses progress on these three themes and additional related activities.

The University had 320 student and academic staff exchange partnership agreements worldwide in 2021, 294 within Europe via Erasmus+.

EMÜ has implemented various initiatives to better support internationalisation, the most apparent by increasing the number of subjects taught in English. The 2021–2025 Development Plan had targets of at least one English taught module in curricula per semester, which had been achieved by the end of 2020, even if implementation is not always clear for all programmes. The introduction of complete programmes taught in English will further increase the attraction to international, particularly for the subjects with international reputation. Examples include MA in 'Agri-food business management', opened in 2019, MSc in 'Environmental governance and adaptation to climate change', opened in 2021, with five further programmes scheduled for 2022/23.

Although the number of foreign students has been steadily increasing for all levels, i.e., undergraduate, postgraduate taught, postgraduate research (from 218 in 2016 to 283 in 2020), the number of student exchanges has been steadily declining in the same period. The figures for incoming students reduced to nearly half, from 188 to 95, while for outgoing students the figures reduced from 142 to less than half at 70 in 2020 (SER, p.34). In terms of diversity, it is encouraging that female students account for well over 50% of the figures.

There appear to be sufficient mechanisms to encourage international student exchanges: scholarship programmes and internships, support with the applications, support with developing English language skills, mobility windows in the curricula, peer mentoring. The average number of ECTS per study visit has increased from 12 to 20 in the period 2016 to 2020. Thus, the reason for such decline is less clear and can only be partly attributed to the Covid-19 pandemic in 2020.

Discussion with the students and the Student Union highlighted further challenges to the students' international mobility scheme, from lack of motivation to concerns about the potential mismatch of their compulsory courses with the availability of these courses in semester blocks internationally. Generally, a semester abroad cannot yield 30 ECTS off one's study load in the EMÜ programme, and as a result a student loses time in completing the EMÜ programme if they study in another country for a semester or a year.

To enable better integration of international and Estonian students and to promote cultural openness, subjects taught in English are studied together with Estonian students with common feedback platform for the different groups (the latter being a recommendation from the previous report). Additionally, foreign students are given 6 ECTS as an additional incentive to study Estonian.

The Expert Panel discussions with various groups at programme level, however, highlighted inconsistencies between similar modules targeted for home and international students. Although the idea is that such modules should be taught together, it does not always happen, with home students requesting more material to be taught in Estonian, which creates tensions. Balancing such tensions while maintaining coherence in the curriculum for both student groups is essential. The University explained that their concept of 'internationalisation' was that international students are a separate "target group" and therefore "modules for international students are not the same by volume and content as those for Estonian students." The Expert Panel regard this approach as contrary to the concept of internationalising the EMÜ learning experience for both Estonian and international

students and that modules should be identical. Ensuring a more coherent curriculum, with identical material for both home and international students, is beneficial to both Estonian and international students through an internationalised learning experience for all.

Outside the classroom, bilingual events organised by the Student Union and the buddy system is further supporting the integration of international students. The cultural integration is viewed by EMÜ as an important aim for a university with an international outlook, benefitting both visiting as well as home students, as confirmed by the interview with the Rector. There is also direct communication and guidance from the Rector for the university to be agent for better interculture mixing in the wider Estonian society.

The Student Union provides 24/7 'customer' support to international students enabled through their offices being in the same building as the dedicated dormitories, as confirmed by the meeting with the Accommodation Manager, while there is co-operation between the Student Union and the international department.

International mobility is supported for staff, both in academic and non-academic positions. There are a healthy number participating in a range of activities. These include professional developments, internships, dissemination in research and teaching. Formal collaborations, such as ERASMUS and the ASTRA project from Structural Funds have supported the two-way mobility of academic staff.

Previous successful collaborations are providing the base for further collaborations, which bodes well for the future. For example, the ERASMUS+ strategic cooperation project EduSapMan (2014–2017) was followed by INTASEK project (2017–2020), and a new project application is being prepared. Overall, there appears to be buoyant activity in this area with 122 international research contracts signed and 23 ERASMUS+ strategic collaboration and capacity building projects implemented in the period 2016–2020 (SER, p.33).

The number of international academic staff at EMÜ has nearly doubled from 7% in 2016 to 13% in 2020, exceeding the 10% minimum target by 2020 set by the University Development Plan. This has been further supported by open international competitions, and the launch of two ERA Chairs, which support EMÜ's international outlook.

Extending opportunities for PhD researchers, they all must present their work in at least one international meeting and funds for this are available, as highlighted in the SER for the doctoral programme (SER, Section 4.4), interviews and additional material requested by the Expert Panel.

Support for integration extends to international staff with international clubs, language and other training courses and the Tartu Welcome Centre established in 2019.

Conclusions

EMÜ conforms to requirements in respect of the Internationalisation standard.

The University goals of internationalisation in education, research and development are well established and clearly set out in the University Development Plan (2016-2025). There is also an administrative agreement between EMÜ and the Estonian Ministry of Education and Research. Performance in attainment of the goals is monitored, assessed, and reported in the EMÜ annual report.

There are obstacles to student mobility despite a supportive environment. On the positive side there are an increasing number of subjects taught in English, scholarship programmes and internships, support with the applications, support with developing English language skills, mobility windows in the curricula, and peer mentoring. On the negative side is the very significant issue that few if any exchange agreements have a good fit with EMÜ curricula on a like-for-like basis, enabling credit to be gained at a rate of 30 ECTS per semester abroad. Students have concerns about the mismatch of their compulsory courses with the availability of these courses in semester blocks internationally. Generally, a semester abroad cannot yield 30 ECTS off a student's study load in the EMÜ programme. The average number of ECTS per study visit has increased from 12 to 20 in the period 2016 to 2020 but still falls short of the desirable figure. As a result, a student loses time in completing the EMÜ programme if they study in another country for a semester or a year.

The number of foreign students has been steadily increasing, from 218 in 2016 to 283 in 2020. The number of students on exchanges has been steadily declining in the same period. The figures for incoming students reduced from 188 to 95, while for outgoing students the figures reduced from 142 to 70 in 2020. All is not perfect. Differences exist in title and content in some modules targeted for home and international students. The University explained that modules for international students are not the same by volume and content as those for Estonian students. The Expert Panel regard this approach as contrary to the concept of internationalising the EMÜ learning experience for both Estonian and international students and that modules should be identical.

Although common modules for home and international students should be taught together, it does not always happen, with home students requesting more material to be taught in Estonian.

There is a good system of international mobility support for all staff grades.

The number of international academic staff at EMÜ, currently 13%, continues to increase and has nearly doubled in the last five years.

Cultural integration is receiving attention. Foreign students are given 6 ECTS as an additional incentive to study Estonian language and culture. Bilingual events are organised by the Student Union. There is a buddy system to further support the integration of international students. Support for integration extends to international staff with international clubs, language and other training courses and the Tartu Welcome Centre established in 2019.

Strengths

- Increased provision of international postgraduate taught programmes around EMÜ's areas of excellence, which provide a steady stream of international students.
- Range of activities outside the classroom to support better integration of international students.

Areas of concern and recommendations

- Seek a better fit in exchange partner curricula, mapping ECTS credits per semester such that outgoing exchange students do not need to increase the overall duration of their studies if they avail of a study abroad opportunity

- Modules for international students are not the same by volume and content as those for Estonian students, which is contrary to the concept of internationalising the EMÜ learning experience for both Estonian and international students. It is recommended that the current practice of different modules be phased out and the learning experience be progressively harmonised for all students, irrespective of nationality.

1.6 Teaching staff

Standard:
Teaching is conducted by a sufficient number of professionally competent members of the teaching staff who support the development of learners and value their own continuous self-development.

Guidelines:
Distribution of teaching staff by age and the percentage of young members of the teaching staff ensure the sustainability of studies. The career model of academic staff motivates capable young people to start an academic career and creates opportunities for their advancement.
The HEI supports systematically the development of its teaching staff. Members of the teaching staff engage in development of their professional and teaching skills, improve their supervision competence, and share best practices with one another.
Teaching staff's participation in research, development and/or creative activities supports the teaching process and ensures competence for the supervision of students' theses (including doctoral theses).
Members of the teaching staff collaborate in fields of teaching, research and/or creative work within the HEI and with partners outside the HEI, e.g. with field practitioners, public sector organisations, companies, other research and development institutions, and lecturers from other Estonian or foreign higher education institutions. Qualified visiting lecturers and practitioners participate in the teaching process.
When assessing the work of teaching staff (including their periodical evaluations), the effectiveness of their teaching as well as their research, development and creative work is taken into account, including student feedback, the effectiveness of their student supervision, development of their teaching and supervisory skills, their international mobility, and their entrepreneurial experience or other work experience in their fields of speciality outside the HEI.

Indicators:
- Competition for elected academic positions
- Number of students per teaching staff member in full-time equivalent (FTE)
- Percentage of teaching staff holding a PhD degree
- The results of the students' feedback about the teaching staff
- Teaching staff participating in continuing training or other forms of teaching skills development
- Other indicators depending on the HEI

Evidence and analysis

Evidence informing the analysis of EMÜ's teaching staff comes from interviews with students, staff, senior staff, stakeholders, and Council members. Further evidence is provided by Section 3.6 of the SER and references to staff throughout the SER including Section 1.4, Aggregate Data on Employees and Section 4 Curriculum Self Evaluation covering Environmental Protection (4.1) Animal Science (4.2), Civil Engineering (4.3) and Veterinary Medicine and Food Science (4.4)

The University employed 478 members of academic staff as of 31 December 2020 (most recent data). The staff profile is gender balanced with 48% female. There are 60 members of international academic staff, already exceeding the Development Plan target of 10% minimum by 2020. The average age of staff was 47 years, with 51.4% under the age of 45. The student to staff ratio (full-time equivalents) is low, at 9.1 (SER, p.12 and p.38).

In accordance with the requirements of the Higher Education Act the University now has four academic staff positions: professor, lecturer, research fellow and teacher. Section 2 of the SER discusses actions taken since the last institutional accreditation to enhance the number of academics holding a PhD. In the previous 5-year period the number of lecturers holding a PhD had fallen (SER page 16) but the most recent data presented in Table 12 shows that numbers have improved with 264 now holding a PhD. Over the last five years, the percentage of lecturers with PhD degrees has increased from 21% in 2016 to 33% by 2020 (Table 13). The goal set by the University that all university teachers in the position of at least a lecturer should have a doctoral degree is being underpinned by the new academic staff position structure. Achieving this is an area that requires close attention in the next five years. Discussions in the interviews covered measures to enhance PhD completion rates. The University is addressing this through several actions such as supporting PhD students' salaries, and a new academic career model. How well these initiatives are working was explored during the interview phase.

The procedures for appointment to academic position are set out in Senate Regulation and are appropriate for the mission of the institution.

The accreditation process has confirmed that the university has a sufficient number of professionally competent members of the teaching staff to discharge the provision offered by the institution.

The Self Evaluation Report sets out the importance attached to staff development by the university. The university development plan sets out the ambition and requirement to support achievement of the staff development goals. Internal and external staff development activities are provided covering discipline specific topics, skill development and pedagogic development. These opportunities include attendance at conferences, symposia, and seminars at international venues alongside events held within Estonia. The institutional career model recognises research and teaching development, and an appropriate balance is struck between the two activities. The Continuing Education courses and training for staff are coordinated by the University Personnel Department. Staff development requirements and opportunities are informed by the results of staff performance reviews, information from interviews, surveys and feedback, and suggestions from department heads and staff. Discussions in interviews explored how the academic career model had helped new and mid-career academics to develop their career. Individual training plans based on the needs of staff are prepared in collaboration with staff members whilst specific institution activities address research, teaching and supervision requirements. The professional development of young researchers is supported via ASTRA. The institution offers a sabbatical leave opportunity for full time staff who are entitled to one semester free of teaching once every five years to develop research or enhance professional skills. Approximately 1 in 25 staff accessed a sabbatical leave opportunity in the last five years. The institutional purposes of the sabbatical scheme could be reviewed and awareness by staff of the scheme enhanced.

The accreditation process has confirmed that the institution supports the development of research and teaching skills for staff.

The SER defines the purpose of staff evaluation as supporting staff professional development and career opportunities and to motivate the staff to contribute to increasing the effectiveness of the University's academic activities. Evaluation is a periodic assessment of academic staff performance and compliance with the requirements of the position. Evaluation considers the effectiveness of

teaching and research activities and takes into account student feedback, the effectiveness of student supervision, the development of teaching and supervision skills, international mobility and entrepreneurship experience or other work experience in a field outside the University. Academic staff members with an employment contract of unspecified term are evaluated at least once every five years. This first took place in 2020, when 68 academic staff members were evaluated. At the end of 2021, the University had 88 evaluated staff members meaning that about one fifth of the staff base has been evaluated. The evaluation process will need to accelerate to complete within the five-year period.

The accreditation process has confirmed that the evaluation of staff covers teaching and research development and takes into account feedback from appropriate sources.

The SER reports that the number competitions for academic positions have decreased in recent years. International applications have led to an increase in the number of candidates for an academic position. In 2020, 37 academic positions attracted about 3 applications per position. Discussions in the interviews illustrated how international staff have enriched the curriculum or supported the development of new research or innovation activity.

The average teaching load is 18 to 20 hours per week per semester (SER, p.89). The potential negative impact on research outputs of this relatively high teaching workload is discussed in Section 1.11.

Conclusions

The accreditation process confirms that EMÜ conforms to the requirements set out in the standard for Teaching Staff.

The university has a sufficient number of professionally competent members of the teaching staff. The student to staff ratio (full-time equivalents) is low, at 9.1. The procedures for appointment to academic positions are appropriate. The institution supports the development of research and teaching skills for staff. The evaluation of staff covers teaching and research development and takes into account feedback from appropriate sources. The University staffing structure has recently been revised to embrace four academic staff positions: professor, lecturer, research fellow and teacher. Significant measures are in place to achieve a goal that all in the position of lecturer should have a doctoral degree, but this remains a work in progress.

Support of staff development goals is evident. Internal and external staff development activities are provided covering discipline specific topics, skill development and pedagogic development. There is an appropriate balance of support for both research and teaching development. Sabbatical leave is available to full time staff, with an entitlement of one semester free of teaching once every five years but the take up is relatively low at approximately 1 in 25 staff availing of the opportunity in the last five years.

Academic staff members are evaluated at least once every five years. The average age of staff was 47 years, with 51.4% under the age of 45. Succession planning is in place such that the sustainability of the staffing resource is secure.

Strengths

- The age profile of academic staff combined with the academic staff career model acts as a support for younger academics

- The contribution to teaching and research by international visiting staff
- Positive and continually improving feedback from students regarding quality of staff performance

Areas of concern and recommendations

- The goal set by the University that all university teachers in the position of at least a lecturer should have a doctoral degree is being underpinned by the new academic staff position structure. Achieving this is an area that requires close attention in the next five years and the University should continue their support to facilitate lecturer grade staff to complete their PhD in a timely manner

Opportunities for further improvement

- Review the use of sabbatical leave to ensure that the model meets the institution's requirements for research, knowledge enhancement and other outputs
- Develop a new approach to communicating the opportunity and expectation of taking sabbatical leave

1.7 Study programme

Standard:
Study programmes are designed and developed while taking into account the expectations of stakeholders, higher education and professional standards, and trends in the relevant fields.
The objectives of study programmes, modules and courses and their planned learning outcomes are specific and coherent.
The study programmes support creativity, entrepreneurship and development of other general competencies.

Guidelines:
In planning and developing study programmes (incl. programmes conducted in a foreign language), the HEI is guided by its objectives, its competence areas and the needs of the labour market, and takes into account national strategies and the expectations of society. The study programmes are based on up-to-date sectoral know-how and research.
The planned learning outcomes are in accord with the requirements for the corresponding level of the Estonian Qualifications Framework, and in planning them the HEI has taken into account the future needs, among other things. In developing study programmes, the HEI has conducted a comparative analysis of similar programmes in leading foreign higher education institutions.
The objectives of the study programme and its modules, the planned learning outcomes, theoretical and practical learning, the proportion of independent work and internship, and the assessment of the achieved learning outcomes form a coherent whole.
The development of general competences (incl. creativity and entrepreneurship) and support for the development of a self-directed learner is a natural part of the study programme, and these are integrated with speciality studies.
Expected student workloads defined in the study programmes are realistic and consistent with the calculation that, on average, 1 ECTS credit equals 26 student learning hours. The study programme offers sufficient challenge for learners with different levels of knowledge and skills.

Indicators:
- Number of students per study programme
- Other indicators depending on the HEI

Evidence and analysis

The University currently has 42 Study programmes open for admission, at three levels and in six curriculum groups. Taken together the portfolio of study programmes cover the entire food production chain and are aligned with the focused though interdisciplinary profile of EMÜ. During the visit, the leadership of EMÜ reflected that the number of master's programmes is perhaps too high. All the Bachelor programmes offered respond to a national-level demand and the Expert Panel recognise that the range could not be diminished without negatively affecting recruitment. Students demand specialized programmes at bachelor's level rather than the broader ones recommended by the Bologna process. Some of the Bachelor level programmes are offered exclusively by EMÜ in Estonia and therefore there is a social responsibility to maintain them. EMÜ is the only university in the country with a specialization in agriculture, forestry, animal science and related fields.

As all academic staff conduct research in these fields, their high competence in the subjects supports and shapes their teaching in the various study programmes. Research activities of students are concentrated in their Bachelor and Master theses but there are also research-focused elective

summer schools, some linked to Erasmus + programmes. The infrastructures used for teaching and research are the same.

The average number of students per curriculum is low (average only 63 in the last academic year), with high dropout rates and small graduating cohorts. The breakdown by level/type of curriculum (SER, p. 43 Figure 14) reveals that average student numbers vary significantly across the curricula. In the period 2016-2020 the number of students in Veterinary Medicine was stable (176 in 2020); in Integrated Engineering was decreasing although stable in the last 3 years (106 in 2020); in bachelor's curricula were decreasing although stable in the last 3 years (82 in 2020); in Professional Higher Education was strongly rising and had doubled in the review period (87 in 2020). The numbers in Master and PhD curricula (40 to 45 respectively) were both stable in the period under evaluation. The combination of so many programmes with so many courses having low student numbers and limited academic staff is managed by designing compatible modules so that some courses are shared by several study programmes and taught simultaneously to all students. The Expert Panel recognise this as accepted practice and a dividend of the modular structure in many universities.

There are clear procedures for creating, developing, and evaluating curricula. Programme development and assessment includes external stakeholders, although the Panel learned that practice varies between departments and can be somewhat informal. The repercussion of this is that the quality of input is dependent on personal relationships rather than the systematic input of a formal advisory board. Both systems have their merits, but the latter provides greater stability in the long term. The following criteria are considered: knowledge objectives and competences to be acquired, labour market trends and needs, and expectations of the society and those of the State. The national qualifications and legal (when applicable) frameworks are also considered. Funding for study programmes comes from the institutes, but extra funds can be requested from the Rectorate to create or update courses. In the 2019 accreditation it was recommended that EMÜ should keep the curricula updated and make them attractive through engagement with all the agents. This has been achieved. In particular the Expert Panel noted that student feedback was used to adjust the content and structure of all programmes in 2021 following more widespread discussion through the Programme Committees, despite the Covid-19 pandemic making meetings and discussions harder to arrange.

The Development Plan has been updated regarding how programmes are built and conducted, including the value-based evaluation of student learning. The Expert Panel noted that since 2018 all programmes are modular and include a transversal course on Entrepreneurship. A new module, compulsory for all programmes, on Environmental Bioeconomy has recently been included. The University conducts continuous monitoring of the elective courses offered, as broad offers are highly appreciated by students, but this is not always sustainable. For master studies, there are on-line levelling courses meant to compensate for the heterogeneous formative background of students at entry level. The coordination of the modular programmes is made by the Programme Committees but also through more informal meetings among teachers. The Student Union praised the coordination of activities and the efforts made by the university and all the teachers during the COVID-19 pandemics to facilitate student progress.

The creation and development of curricula is based on the national strategies and expectations of the society, including labour market needs, future skills required, the labour demand monitoring and forecasting, and professional standards. The data on the correspondence between the expectations to curricula and content of curricula was confirmed by the results of the 2021 alumni survey. In a

review of four selected study programmes the Expert Panel found the objectives of study programmes, modules and courses and their planned learning outcomes to be specific and coherent. For example, programmes demonstrated a good balance between scientific and practical studies and provides a range of specialist opportunities that addressed contemporary subjects of study, there was holistic curriculum development, considering views from different relevant stakeholders ensuring very competitive graduate attributes, societal impact was clear, and research questions of theses addressed relevant topics.

In the interviews the Panel learned that admission to some programmes does not rely solely on students points from state exams at entry, but also requires an entry exam, a portfolio and/or a motivation letter. Additional entry points can be awarded for participating in the Olympiads, research competitions and passing the Nature Science School etc.

The Programme Committees monitor student progress in the university benchmarked against their level of points at entry but report no apparent correlation. Dropout rates in Estonian HEI's are high in general but often that statistic can represent a student moving to another programme, even to another programme within EMÜ. The Expert Panel noted the success to date of EMÜ in decreasing drop-out rates by 10 to 15% per annum through ongoing preventative measures (SER, p.21).

During the visit it became clear that the concept of Intended Learning Outcomes is not yet fully understood by all teachers and even Unit Heads. The Panel found that students are not overly familiar with it as a core concept for designing aspects of their teaching, learning and assessment strategies. Nevertheless, surveys indicate that the level of understanding of the learning outcome concept across the University is getting better.

All courses and professors are evaluated by the students at the end of the semester and the results are available for each teacher and for the Heads of the institutes. According to the students and the leadership, this may lead to teacher replacement, but it is also used in determining the award given by EMÜ to the best teacher of the year. There are several opportunities for pedagogic training of teachers, including National Funds for staff development in teaching. Regarding teaching duties vs research for academic staff, there is some flexibility in designing career paths, but teaching hours/week are in general high.

Face to face time takes around 50% of credits. The SER states that student load is realistic and during the visit the students mostly agreed with this statement. The progress with practical training organisation (e.g three party mandatory agreement and, remarkedly, about 100 companies involved) is noteworthy, and the practical training process in one curriculum has been awarded a quality mark. The practical placements range from 6 to 12 ECTS depending on the programme. Internship experience is appreciated by students, staff, and external tutors.

The SER declares that all programmes are practical in nature and there are good examples of research-oriented learning. A noteworthy example is the laboratory courses in Food Technology, conceived as projects where students must develop their skills on self-learning, research planning and conducting, and creativity. Even though this methodology imposes much more work from the student side, these projects are appreciated by alumni, teachers, and students as a successful way of encouraging self-learning, curiosity and independence. However, the academic staff explained during the visit that teachers currently promoting this methodology got lower rating from the students. EMÜ is reflecting

on these contradictions, as in the 2019 accreditation EKKA was directed to develop student-centred learning outcomes and train them in critical thinking.

EMÜ has a joint curriculum with other universities (one national and two international) and are working on more collaborations. In the 2019 accreditation, it was recommended to provide more courses in English, and this has been done. Such courses or modules in English are designed to facilitate paths for international students and have resulted in an increase in their numbers. Sometimes they duplicate those taught in Estonian while on other occasions (depending on student numbers) there is a unique course taught partially in both languages. Most (Estonian) students interviewed by the Panel do not feel satisfied with the teaching being in English, while alumni clearly supported this practice as a means to acquire better competences for their further studies and the labour market.

Conclusions

The accreditation process confirms that EMÜ conforms to the requirements set out in the standard for Study Programme.

There is a coherent and robust system for programme creation and development. Guidelines are clear. Stakeholder opinion is taken into account. Programme outcomes are strongly oriented towards employability, with external practice embedded in all programmes. The programme fields of knowledge are fully aligned with the EMÜ mission, vision, and research expertise. A concern is that the full potential of the Intended Learning Outcome approach has yet to be fully harnessed in optimising programme development, module delivery and student assessment strategies due to a lack of its full understanding by some members of the academic staff, which makes best practice somewhat patchy across the University. Consideration could also be given to streamlining subject combinations to reduce the number of programmes with low student numbers and high dropout rates.

Strengths

- Solid and well supervised practical training, mandatory in all programmes
- Laboratory courses implemented as projects where students must develop their skills on self-learning, research planning / execution and creativity
- Modular structure that provides flexibility for student curriculum and optimises use of academic staff resource
- Strong alignment of academic staff research interests and their teaching duties
- Increased number of taught courses and modules in the English language

Areas of concern and recommendations

- The full potential of the Intended Learning Outcome approach has yet to be fully harnessed in optimising programme development and module delivery despite a collaborative effort on aligning student assessment strategies with outcomes. There remains a lack of its full understanding by some members of the academic staff, which makes best practice somewhat patchy across the University. It is recommended that an audit be conducted across the university, mapping programme outcomes with learning outcomes of modules to identify examples of best practice to be shared in pedagogic training courses

Opportunities for further improvement

- Reflect on the programmes with low student numbers and the sustainability of offering abundant elective courses. This could involve reducing the number of master's programmes and increasing the intersection of modules common to several programmes to reduce the teaching duties of researchers. Reducing contact hours might also help this goal while contributing to enhance students' independence and self-learning competences. Consideration could be given to streamlining subject combinations
- English competences of Estonian students could be improved so that English-taught courses and modules do not need to segregate international from Estonian students. This would enhance the internationalization goals of EMÜ
- Consider extending the concept of project-based laboratory courses in Food Technology to other programmes
- Consider the merits of standardising external stakeholder involvement in programme development solely through the structure of advisory boards for each study field

1.8 Learning and teaching

Standard:
Admission requirements and procedure ensure fair access to higher education and the formation of a motivated student body.
The higher education institution systemically implements a student-centred approach that guides students to take responsibility for their studies and career planning, and supports creativity and innovation.
Graduates of the higher education institution, with their professional knowledge and social skills, are competitive both nationally and internationally.

Guidelines:
Admission requirements and procedure are fair and impartial. In the admission process, student's ability for academic progress on the chosen programme is assessed.
The academic recognition of foreign qualifications is based on international conventions, agreements between countries, and the Estonian legislation.
Learning and teaching process takes into account students' individual abilities and needs and supports their development. Learning offers sufficient challenge for students at different levels. Students participate in planning and implementation of the learning process. Organisation of independent work and face-to-face teaching motivates students to take responsibility for their studies.
Teaching methods and learning aids used in the learning and teaching process are modern, appropriate and effective and support the development of digital culture, contributing – among other things – towards the development of a self-directed learner, creativity, innovation and the development of other general competencies.
The internship is integrated with speciality studies, the requirements for the internship are defined and the student's supervision ensured.
Students are motivated to learn and contribute to improving the quality of their studies by providing meaningful feedback on both the learning and teaching process and the organisation of studies.
Doctoral students plan their studies, as well as their research and development activities, in collaboration with their supervisor(s), setting specific objectives for each year and assuming responsibility for achieving those objectives.

Indicators:
- Student satisfaction with the content and organisation of studies
- Alumni satisfaction with the quality of studies
- Employer satisfaction with the preparation of the graduates
- Other indicators depending on the HEI

Evidence and analysis

Admission to the University is by open competition through the Study Admission Information System (SAIS), with international student applicants submitting applications in the DreamApply environment. Admission requirements (in Estonian) are uniform and there are no fundamental differences between curricula.

EMÜ has continually developed its admissions system to be professional in every respect and underpinned by appropriate institutional structures and processes, which facilitate an efficient, high-

quality admissions system and a professional service to applicants. The admission structures and process are declared by Senati Määrus, dated 25 November 2021, No. 1-28/7.

EMÜ understands the importance of providing applicants with the information they require to make an informed choice of curricula and institution. Admissions policy and detailed criteria for admission to EMÜ curricula, with an explanation of admissions processes, is explained in the EMÜ website. According to the 2020 survey to applicants, 95.4% of the respondents received information from the University website. Perhaps due to Covid-19 disruption the admission information for the four study programmes evaluated as part of this institutional review were not yet updated for the year 2022 (English version of the page, checked 2022-03-13). Admission requirements are also introduced in social media. The curriculum and speciality are advertised on television, radio and in the press, at trade fairs and educational information events Teadlaste öö, Intellektika, Orientiir, Ehitusmess.

EMÜ understands the importance of assessing at the application stage a candidate's potential for successful completion of the curriculum. Therefore, the University has introduced measures, such as merits, tests, letters of motivations, and/or academic achievement (state examination results). The University explained the practice as follows: "the result of the entrance examination for applying for a master's level can be replaced with the grade of the final thesis of the previous level of education, if the previous speciality corresponds to the applied speciality. Otherwise, candidates will take an entrance examination. The admission information is precisely communicated for each master's curriculum." Thus, the prescribed practice is that students who have completed another field of speciality take an admission test. The Expert Panel's opinion of evidence from its review was that not all applicants had taken the entrance examination in cases where the applicant's bachelor's degree ("previous speciality") did not correspond with the master degree programme ("applied speciality"). Thus, there are some variations across EMÜ in understanding the importance of reliability and validity of the process of assessing applicants / student candidates, whether using quantifiable or qualitative measures. Not all reasons for decisions are recorded.

SER proceedings reveal that the teaching/study process is built on the learner/student-centred (L/S-C) approach, facilitating student learning, "…considering individual abilities and needs of students, supporting their development and providing a challenge for students of all levels". The Panel found evidence in all the study programmes under review of students being supported in taking responsibility for their own learning. Small group teaching is a feature of module delivery in certain programmes, especially graduate level programmes. However, the Panel was not confident that there was universal effective and systematic use and sharing of good practice related to student centred learning and to ensuring that teaching enabled students to meet the learning outcomes. After the Panel discussions with academic staff and curriculum students the Panel found weak evidence on how EMÜ has monitored progress across all curricula in learner-centred teaching over the years; how and when during the teaching process the lecturers evaluate individual abilities and needs of the students to apply the L/S-C approach possibility. During the discussions with the curriculum academic staff and students, the Panel found that there are different understandings as to what and how the L/S-C teaching can be implemented. The Panel notes that there is a lack of information on how the lecturer/teaching quality is assessed as a part of the 'L/S-C' approach success validity.

PhD studies are conducted on the basis of individual plans prepared by the PhD student in collaboration with the supervisor(s). The individual plan presents the objectives of the PhD research, the work planned year-by-year; the courses, subjects, and training to be completed based on the topic

of the PhD thesis, as well as presentations of research results at PhD seminars and international research conferences.

Students are involved in planning and conducting the study process (SER, p.48). Students can participate in the choice of teaching methods and setting the deadlines and assessment methods for submission of work (reports, projects, etc.). However, the Panel note the high compulsory ECTS level of 79 ECTS in the MSc Animal Science. This could present an obstacle for the student-centered approach implementation and reaching the learning outcomes that are determined in the curriculum when students are admitted with different knowledge and skills portfolio.

Students contribute to the activities of the University and actively participate in improving the quality of the study process and study organisation. Students are members of decision-making bodies (e.g., the University Senate, institute councils) and committees (e.g., Senate committees, curriculum development committees, scholarship grants and scholarship award committees), participate in the University Board and chairs meetings and seminars, and participate in developing documents regulating educational activities (e.g., Study Regulations) and give constructive and meaningful feedback on the quality of teaching and the learning process. Student feedback is used to improve the quality of learning and to plan curriculum development activities. Feedback is regularly requested through ÕIS at the end of the autumn and spring terms of each academic year; feedback on the curricula is asked from graduating students in the spring term immediately (SER, p.50).

Theoretical and practical learning is integrated in teaching, and the share of practicums, seminars and laboratory work is relatively high. The volume of contact studies, including e-learning (lectures, practicums, laboratory work, seminars) makes up no more than 50% and not less than 15% of the volume of subjects; the volume of independent work makes up at least 50% of the volume of subjects. Such organisation of studies encourages students to take more responsibility for their studies (SER p.49).

Study practice and training in an enterprise are purposeful activities organised to achieve learning outcomes, aimed at applying the acquired knowledge and skills in a working environment. The volume of study practice in curricula varies and can be up to 13 ECTS (e.g., the bachelor's curriculum in “Forestry”). The minimum volume of training in an enterprise in the bachelor's and civil engineering curricula is 6 ECTS, in the master's curricula 5 ECTS. Practical training can also be the so-called research practice on a topic related to the enterprise in the master's degree curricula. The overall satisfaction with traineeship is high (SER, p.50).

Modern, purposeful, and effective teaching/study methods and tools are used in studies, incl. digital tools that support acquiring learning outcomes in subjects, student creativity, innovation, and developing general competences, including digital competences. The Panel did however find that when analysed courses / subjects learning outcomes remained mostly at the knowledge level, missing some important ones directed to a sustainable development: systems, anticipatory, strategic, and critical thinking, including as well collaborative, self-awareness and integrated problem-solving competencies. Nevertheless, the Panel found that student feedback results for teaching in the academic years 2016/2017–2020/2021 reveal ever-increasing student satisfaction rate.

The proportion of distance learning increased significantly during the spread of the COVID-19 virus, when face-to-face studies were banned. The proportion of distance learning also increased due to the

fact that several master's degree full-time curricula were modified and became block mode curricula, where studies take place as study sessions, considering the needs and preferences of students.

The University graduates are in demand in the labour market. The SER notes that, according to the University institutes, 70–75% of graduates are or have been in professional employment.

Students are motivated to study and graduate. On average, 80% of students graduate with the nominal period and 6–9% with an extra year (n + 1), except for the Civil Engineering study programme (due to serving in the military service) and PhD studies (due to parental leave). Students who enter speciality related work during their studies and drop out of their studies will mostly later find their way back to the University external studies to obtain the academic degree necessary for the professional career.

Conclusions

EMÜ has continually developed its admissions system to be professional in every respect and underpinned by appropriate institutional structures and processes. Isolated examples exist however in understanding the importance of reliability and validity of the process of assessing applicants / student candidates, whether using quantifiable or qualitative measures. Not all reasons for decisions are recorded.

Students contribute to the activities of the University and actively participate in improving the quality of the study process and study organisation. Students are members of decision-making bodies.

Students are supported in taking responsibility for their own learning. Small group teaching is a feature of module delivery in certain programmes, especially graduate level programmes. However, the Panel was not confident that there was universal effective and systematic use and sharing of good practice related to student centred learning and to ensuring that teaching enabled students to meet the learning outcomes.

The experience of the Covid-19 pandemic set an increasingly important context for the Sustainable Development agenda whereby higher education institutions must focus on interconnections and interdependencies between economic, social, and environmental factors. The responsiveness of EMÜ to position this context strategically and operationally across their curricula emphasizes the University's aspiration to be the leaders of bioeconomy development. Nevertheless adding a few new courses to existing curricula is just a first step. Further development could be achieved by framing curricula more towards education for sustainability by ongoing review of existing courses, revising learning outcomes, student-centered approach developments and evaluation system by taking into account the focus on interconnections and interdependencies between economic, social and environmental factors.

The University should continue strengthening education for sustainable development and further emphasise this in ongoing curricula updates.

Strengths

- Small group teaching, especially in graduate level programmes

Opportunities for further improvement

- As part of the innovations in the learner/student-centred approach the various admission measures used to assess student's ability for academic progress on a chosen programme could be employed to optimise their individual study plan
- Reconsider the importance of reliability and validity of the process of assessing applicants / student candidates, whether using quantifiable or qualitative measures.
- Consider revising curricula learning outcomes more towards sustainable development because the current curricula are constrained at the knowledge level. Direct curricula more to systems, anticipatory, strategic, and critical thinking, including collaborative and self-awareness and integrated problem-solving competencies.
- The curricula content, increasingly orientated to the bioeconomy, could further involve the broader sustainable development issues and challenges into the specialty modules / subjects. Thereby the University could strengthen education for sustainability competency and attributes in this context such as creativity, opportunity recognition, self-determination and ensure it has developed staff with the right skills and capabilities to deliver these issues.

1.9 Student assessment

Standard:
Assessments of students, including recognition of their prior learning and work experiences, support the process of learning and are consistent with expected learning outcomes.
The objectivity and reliability of student assessments are ensured.

Guidelines:
The assessment criteria are understandable to students and students are informed about them in a timely manner. Members of the teaching staff cooperate in defining assessment criteria and apply similar approaches.
Assessment methods are versatile and relevant, assess the degree of achievement of learning outcomes (including general competencies), and support the development of a self-directed learner. If possible, more than one staff member is involved in the development of assessment tasks and student assessments. Along with assessments, students receive feedback that supports their individual development.
The HEI supports the development of teachers' assessment competencies.
Evaluation of doctoral students is transparent and impartial. Its purpose is to support the development of doctoral students, to assess the effectiveness of their current work and to evaluate their ability to complete the doctoral studies on time and successfully defend their doctoral theses.
When recognising prior learning and work experience towards the completion of the study programme, results obtained through the studies and work experiences (the achieved learning outcomes) are assessed. Students are aware of their rights and obligations, including the procedures for challenges regarding assessments.

Indicators:
- The number of credit points applied for and awarded under the accreditation of prior and experiential learning scheme (APEL)
- Other indicators depending on the HEI

Evidence and analysis

Due to the results of the previous Institutional Accreditation in 2019, the EMÜ has worked to clarify the objectives and learning outcomes of all curricula and has updated the assessment methods (SER, p. 16). Academic staff has been trained to be able to implement learning outcome-based assessment and describe assessment criteria better. The university is regulating assessment of learning outcomes through Regulation of studies (enforced 01.03 2020). This document contains information about the assessment methods, criteria and scales used in the EMÜ. In addition, it describes the rights and obligations of the students including the challenges related to situations when a student wants to contest the result of the examination. Assessment methods etc. are specified under each course syllabus available in the University study information system (ÕIS) by the beginning of registration for subjects.

Course syllabus of a subject identifies the objectives of the subject, learning outcomes, schedule, assessment methods for achieving the learning outcomes and the principles of grade components (SER, site visit and interviews). Members of the teaching staff collaborate in defining assessment criteria and apply similar approaches (SER, interviews). Collaboration within a subject and across subjects is done to select teaching and assessment methods and setting out the criteria for the final

grade. Problem-based learning has been identified as one form of interdisciplinary collaboration (SER p. 52). Assessment is sometimes carried out in collaboration with several lecturers, including jointly assessed tasks. At least 50% of subjects are taught and assessed by two or more lecturers in the EMÜ (SER p. 53).

During the last six years, student feedback about the assessment of learning outcomes and feedback supporting learning has become more positive. This shows that the assessment criteria are comprehensible for students. When the Panel interviewed students, it became evident that students are informed about the assessment criteria in a timely manner, and they did not have specific concerns related to assessment criteria used.

Various assessment methods ranging from traditional (e.g., test, report, oral / written exam) to complex (e.g., project, case study, problem solving) are being used. General competencies, such as foreign language, presentation, communication skills, reading comprehension, written expression, and teamwork skills, are assessed through the more complex methods. The SER did not describe what the major drivers for the selection of certain assessment methods are and how the type of a learning outcome affects this. Developing assessment methods for group work, based on the Panel's interviews is an area that still needs to be considered.

The University has increased the number of e-learning courses and the quality of e-courses has improved. Several of the University e-courses have a nationally recognised quality label. Simultaneously the need to implement means to avoid fraud has grown (SER p. 32). Academic ethics violations by students had been decreasing prior to 2020 but there was a spike in cases during distance learning and assessment necessitated by restrictions during the Covid-19 pandemic. EMÜ have recognised a new challenge in association with e-learning ethics. Distant learning and ethics need specific measures that should be developed and implemented.

The University supports and promotes professional development of academic staff by enabling staff to participate in didactic continuing education courses and training. The teachers have the possibility to develop their assessment competencies. The Department of Academic Affairs has conducted experiential training for staff, primarily on assessment methods and criteria focused on learning outcomes (SER p. 55).

Evaluation of the progress of doctoral researchers takes place annually and finally during the thesis defence. Annual evaluation is a mixture of follow-up and assessment activities. It is quite typical in many universities to set up a support and follow-up group for PhD researcher at the beginning of the work. This group meets annually throughout the PhD research period not only to follow up progress but also to proactively provide support and solve problems. Follow-up group should also follow the quality of supervision, not only performance of the PhD researcher. In SER the actions described (p. 53) were mainly focused on the performance of the PhD researchers, but the quality of the supervision is equally as important to be discussed. There is not yet an online platform used for monitoring PhD research. Use of an online platform for the documentation of the PhD research progress could be quite helpful for both the students and evaluators, given the excessively long period involved in some student's research, during which time disputes can arise over the quality of supervision if the student fails to graduate. On a more positive note, 'what gets measured gets done' and formal documentation of progress in an online tool can help to keep a doctoral student focussed on their timeline. SER mentions (p. 55, mentioned as a strength in the table) that the current system supports the PhD researchers well. The Expert Panel were very concerned about the long study times needed to obtain

a PhD degree. Very few managed to pass it in the recommended time of four years. There may be underlining socioeconomical factors responsible for this, but supervision quality is also very important for the PhD researchers to reach their goals in time. Too long study times make an obstacle for the subsequent development of the post-doctoral researcher career.

Construction of the committee for thesis defence is fair and it takes conflict of interest into consideration. Doctoral degrees are awarded by defence committees appointed by the University Senate. A defence committee consists of at least three members with a doctoral degree or a corresponding qualification, including, generally, at least one member from outside the EMÜ. Students are well-informed about the requirements of the thesis (Conditions and Procedure for Applying and Awarding Doctoral Degrees) as well as the peer review process and the thesis defence.

The University recognises prior learning and professional experience (RPL, VÕTA in Estonian) as part of completing curricula. Application, recognition, and assessment of RPL is regulated by a regulation of the University Senate. During the interviews, many students indicated that they are aware of RPL, and some had also used it successfully.

The objectivity and reliability of student assessments is ensured through regulation in the Study Regulations. The precise details of assessment is specified in the course syllabus of each subject (SER, p.52). In the majority of modules there is more than one lecturer involved which further strengthens the objectivity of the composite grade awarded.

Conclusions

The accreditation process confirms that EMÜ conforms to the requirements set out in the standard for Student Assessment.

The University is regulating assessment of learning outcomes through Regulation of studies (enforced 01.03 2020). The objectives and learning outcomes of all curricula have been clarified since the previous accreditation. Implementation of learning outcome-based assessment has been improved through upskilling of academic staff. The Department of Academic Affairs has conducted experiential training for staff, primarily on assessment methods and criteria focused on learning outcomes. Assessment methods are specified in the University study information system (ÕIS) by the beginning of registration for each subject. The rights and obligations of the students are set out including the procedure for a student to contest an examination result. Students are informed about the assessment criteria in a timely manner and did not raise concerns related to assessment.

The majority of subjects are taught and assessed by two or more lecturers. This strengthens the objectivity of the composite grade awarded. There is good collaboration among the teaching staff in the application of similar approaches and criteria in assessment. This is helpful in the greater use of problem-based learning. However, the need to develop assessment methods for group work is an area that still needs to be considered.

The number and quality of e-learning courses has grown, evidenced by several having a nationally recognised quality label. Simultaneously the need to implement means to avoid fraud has grown. There are new challenges in association with e-learning ethics and specific measures should be developed and implemented.

The study times needed to obtain a PhD degree are excessive, with very few candidates completing in the recommended time of 4 years. While there may be underlining socioeconomical factors responsible, the Panel would stress that supervision quality is also very important for researchers to reach their goals in time. Evaluation of the progress of doctoral researchers takes place annually, mainly focused on the performance of the PhD researchers. The researchers do not benefit from the support of a doctoral studies group responsible for checking annual progress but also providing support and solving problems with student-supervisor working relationships.

Construction of the committee for thesis defence is fair and it takes conflict of interest into consideration. The defence committee consists of at least three members with a doctoral degree or a corresponding qualification, including, generally, at least one member from outside the EMÜ. Students are well-informed about the Conditions and Procedure for Applying and Awarding Doctoral Degrees as well as the peer review process and the thesis defence.

Students indicated that they are aware of regulations for recognising prior learning and professional experience (RPL) and some had also used it successfully.

Strengths

- Teaching staff collaborate actively to define and develop assessment methods

Opportunities for further improvement

- Define criteria enabling better evaluation of the individual contribution of each student in group work
- Use of student peer evaluation during group work to engage all students
- The group performing annual PhD evaluation should also monitor quality of the supervision. Consider ways for PhD researchers to give feedback on supervision and how this feedback will be used.
- Construct an online tool for follow-up of the PhD research progress during the whole study period

1.10 Learning support systems

Standard:
The higher education institution ensures that all students have access to academic, career and psychological counselling.
Students' individual development and academic progress are monitored and supported.

Guidelines:
The HEI assists the student in developing an individual study programme based on the student's special needs as well as educational abilities and preferences.
The HEI advises its students (including students with special needs and international students) on finding internship places as well as jobs. Students are aware of where to get support in the case of psychological problems.
The HEI has a functioning system to support and advise international students (including psychological and career counselling) which, inter alia, helps them integrate smoothly into the membership of the HEI and Estonian society. The HEI analyses the reasons students withdraw from studies or drop out, and takes steps to increase the effectiveness of the studies.
In order to carry out studies and research, development and creative activities, the availability of up-to-date study and research literature, other study materials and tools (including those for independent work) and access to research databases is ensured. Study literature, materials and other teaching aids are of equally high quality.
To support study activities, timely and relevant information and communication technology solutions have been planned, including the study information system, document management, and e-learning environment.
The HEI supports student participation in extra-curricular activities and civil society initiatives.
The HEI monitors student satisfaction with the counselling services provided and makes changes as needed.

Indicators:
- The average duration of the study by levels of study
- Dropout/withdrawal rate (during the first year and the whole study period)
- Students` satisfaction with the support services
- Other indicators depending on the HEI

Evidence and analysis

The learning support systems at EMÜ are comprehensive, cognisant of the high drop-out rates endemic in the Estonian higher education system. An administrative agreement was concluded between the University and the Ministry to address particularly high dropout rates in the professional higher education programme and civil engineering programme. These rates were reduced to the University average over the 2019 to 2021 period (SER, p. 58).

There are tutoring and ‘buddy’ (peer) systems in place, for local and international students support, respectively. Both groups are trained centrally. Additional support to tutors and buddies is offered in the form of supervisor’s meetings. Additionally, there has been a pilot project on adding a course tutor to a curriculum (SER, p. 57). The SER states that these projects “have been received warmly by the students and many insecure students have therefore found help and motivation to continue their

studies" thus reducing the drop-out. The Panel learned that there are no conclusions made as yet based on this pilot project and whether or not there will be follow-up projects or permanent additions to the current support activities.

Academic counselling is mainly offered by study regulation specialists. EMÜ states that students' academic progress is constantly monitored (SER, p. 55). However, the Expert Panel learned in meetings with staff that this is a reactive process, directed at students already failing or in greatest need of support.

The University has mapped the possibilities for students with special needs to study in the provided curricula. In practice mapping by the admissions officer mainly considers different physical disabilities. In case psychological disabilities require adjustments in teaching or assessment methods, students may refer to a psychologist who functions as a mediator between a student and a teacher to find a solution. Students are not required to notify EMÜ upon admission or while studying about psychological disabilities. Management cannot therefore determine how many students require such additional support unless and until the student presents with an obstacle to learning (M).

Two psychologists assist students with mental health difficulties. EMÜ has advertised psychological therapy opportunities via many communication channels and events, including Estonian students' orientation week. In addition, international students are provided with psychological training to aid in their cultural assimilation. Multiple seminars have been arranged to raise awareness of mental health issues and build coping strategies based on the students' initiative in partnership with counselling specialists. Collaboration between the Student Union and University specialists (psychologist and career advisor) has produced seminars on preventative strategies: coping with stress, time management, motivation, ability to concentrate (SER, p. 56).

Support in academic writing is offered to PhD students in the form of writing camps. The Expert Panel learned in meetings with students that such writing camps are popular among doctoral students and receive good feedback. Writing camps are mostly financed through doctoral schools and at the moment they are project based (M) which raises the question of sustainability.

The SER offers no overview of how bachelor and master's students are supported in finding supervisors and tutors, and how academic writing is supported in these levels. During the site visit and interviews the Expert Panel learned of a variety of practices – students seeking supervisors out, supervisors offering topics in classes, curriculum heads assisting in bringing students and supervisors together etc. Based on the evidence, the current practice is working satisfactorily.

Recognition of prior learning and work experience is enabled. Credit points awarded through RPL have overall decreased in 2016-2020 (SER, p. 54), but the number of ECTS credits gained or transferred through RPL per study visit by outgoing students has increased from 12 to 20 in the same period. The latter can be attributed to changes in curricula (creation of 'mobility windows) and through effective counselling in planning a mobility opportunity.

The head of the curriculum and the institute's employees provide career guidance to students as they plan for their future professional careers. Centralized career counselling is focused on students about to graduate. EMÜ organizes a career day once a year and has established multiple collaborations with external partners to assist international students finding employment and internship. According to SER, the majority of PhD candidates work in academia following graduation.

The Expert Panel noted the specific academic, psychological, and career supports available to international students. It is of comparable quality for international students as it is for domestic students. International students are assisted in job searches by the University international relations specialists (SER, p. 56). Additionally, services concentrating on cultural differences and customs are provided with the goal of strengthening adaptation to the Estonian society. Student Union events are bilingual to involve foreign students in student life.

Previously EMÜ has received multiple recommendations aimed to decrease drop-out. One solution has been clearer communication of expected study outcomes for prospective students on the university website. Adding motivation letters to admission criteria and changes in curriculum structure has had a positive effect. Ensuring contact between students (including piloted course tutor system) increases the possibility to spot students in need of support. When it comes to following up reasons for drop-out EMÜ have limited legal rights to make enquiries through contact with former students.

Academic leave is granted to allow students take a break from their studies for a variety of reasons. To mitigate this leave leading to drop-out, EMÜ now allows students on academic leave to continue their studies during this time (SER, p. 57). EMÜ provided additional evidence on reasons students take academic leave. Over the years the general proportion of different reasons have not changed (including during Covid-19). The Expert Panel learned that there is not a standard practice in the way communication is conducted with student while they are on academic leave (M). Contact with students on some programmes is maintained by academic staff (for example curriculum head) and on some programmes by support staff (for example department secretary). EMÜ has a system that enables students to be contacted during periods of academic leave but during panel discussions with students it became clear that not all students were aware of the system. EMÜ should enhance student awareness of the opportunity to participate in academic activities whilst on leave.

Nevertheless, special measures have been introduced to alleviate economic hardship caused by the Covid-19 pandemic. Payment of study expenses incurred by students who had retaken failed modules can now be rescheduled. No study expenses will arise from modules failed during the pandemic (SER, p. 57).

Access to research literature and databases is sufficient and with the transition to distance learning online accesses have become dominant. In addition, multiple online learning and material sharing platforms are being used to enhance and support the achievement of learning outcomes. Various other platforms are being used for e-learning as well as assessment monitoring and plagiarism detection. Feedback to online learning has been collected during Covid-19 period, the Student Union being an active partner for the university (M, S). The Study Information System serves many functions and is used frequently across study levels.

Students' extra-curricular activities are supported and endorsed through funding via Student Union and University level acknowledgement. A lot of such activities seem to be sport-related and promote a healthy lifestyle (SER, S). Participation in study field-related competitions is encouraged, as is the formation of study field-related student organizations and projects. The Student Union budget comes from EMÜ, and major expense articles need pre-approval from the vice-rector (S).

The University takes a versatile approach to learning support systems, including academic, professional, and psychological counselling. Various counselling services are promoted in a variety of ways across all university communication platforms. Students' awareness of support services is

surveyed every two years, among international students every year, and the survey results have recorded >70% awareness rate. Students' satisfaction with the counselling services provided is also monitored. Survey results show high satisfaction rate, at around 3,8 on a 5-point scale in recent years. Survey results of both cohorts are stable over the years with a slight positive dynamic. Feedback is gathered and used to enhance services. Examples of response to feedback include the employment of an additional psychologist, more support to first year students on orientation to university life. Issues highlighted for further improvement include the condition of the dormitories, not least internet connections. (SER, p. 60, 61). However, the Panel learned of no systematic processes involved in continuous development and improvement of provided counselling services or other services meant to support students learning. This would indicate that the continuous improvement process described in Quality Management System is not being effectively harnessed for processes designed to support students learning. Data is collected and analysed but follow-through is patchy - there is no agreed procedure on the bottom-line for satisfaction rating, time limit for follow-up action and definition of responsibility for closing the quality loop on these supports.

Conclusions

The accreditation process confirms that EMÜ conforms to the requirements set out in the standard for Learning Support Systems.

The learning support systems at EMÜ are comprehensive. EMÜ provides students with a full range of services, including up-to-date IT systems, improved library facilities, a variety of clubs and societies, and well-functioning counselling services. International students are also supported by international relations specialists. Students are well-informed about the resources available, although satisfaction, despite increasing year by year, could be higher.

There are multiple examples of good practice in supporting students during their studies and after graduation.

There is a lack of consistency and comprehensiveness in the monitoring of many of the procedures offered and related processes. The opportunity should be used to implement the continuous improvement process described in Quality Management System for processes designed to support students learning.

Many pilot projects aimed to support learning have been carried out, with favourable results. However, the vision of how to make them sustainable and permanent (also in relation to funding) is weak.

Strengths

- Well-functioning collaboration between students and specialists at the University has led to remarkable activities aimed to increase awareness and promotion of mental health. Together with increased accessibility to psychological counselling EMÜ has created a supportive environment to the whole University membership

Areas of concern and recommendations

- In order to enhance student learning opportunities EMÜ should continue to enhance awareness among staff of the continuous improvement process described in the Quality Management System and to follow the processes designed to support student learning - what

are the minimum levels they want to achieve and what action will be taken when minima are not achieved

Opportunities for further improvement

- To further reduce the dropout rate, in addition to the reactive system of assisting students whose academic progress is weak, the University could consider identifying potential indicators in the profile of students who drop out and proactively monitor these indicators to give early identification of students at risk
- Consider more thorough monitoring on why students take academic leave, stronger interaction with them at the end of the leave period if they do not return and additional support upon returning to studies to increase their possibility of graduating within a reasonable timeframe
- Enhance student awareness of the opportunity to participate in academic activities whilst on academic leave
- Goals should be set for further development of the counselling services with metrics (e.g., awareness, waiting time to receive psychological counselling, seminar effectiveness etc.) included in relevant action plans
- Building on the strengths of pilot learning support projects and research project funded writing camps, consider the feasibility of making these initiatives sustainable through central funding

1.11 Research, development and/or other creative activity

Standard:
The higher education institution has defined its objectives and focus in the fields of RDC based on its mission, as well as on the expectations and future needs of society, and assesses their implementation and the societal impact of its RDC activities. RDC supports the process of teaching and learning at the higher education institution. Support services for RDC are purposeful and support implementation of the objectives of the core process.

Guidelines:
The HEI places a high value on the role and responsibilities of the field of RDC in society and evaluates the results of its RDC activities, their international visibility and societal impact.
The HEI responds flexibly to the current needs of society and the labour market in terms of its research and plans its research in collaboration with enterprises, public sector institutions and organisations of the third sector.
Members of teaching staff introduce students to their research results as well as the latest scientific achievements in their areas of specialisation, and involve students in their R&D projects where possible.
The organisation and management of RDC take into account the profile and the mission of the HEI.

Indicators depend on the specificities of the HEI:
- Numerical data:
  - (1) scientific publications by classifiers;
  - (2) public presentations of creative work; recognition from international competitions; reviews in professional publications, etc.;
  - (3) patent applications, patents;
  - (4) textbooks, study aids of various formats, etc.;
  - (5) system development solutions; product development solutions; environmental applications solutions;
  - (6) contracts concluded with enterprises;
  - (7) spin-off companies, etc., in line with the profile and priorities of the HEI; etc.
- Number of scientific publications / creative works per member of academic staff and per employee with the requirement to do research (FTE, by areas)
- Number and volume of externally funded projects of RDC activities
- Proportion of projects with a positive financing decision out of the submitted project applications.
- Other indicators depending on the HEI

Evidence and analysis

Research and Development in the life sciences underpins the core of all EMÜ's activities. This is specifically reflected in the wording of the mission and vision statements of the University, as discussed in Section 1.1. The Expert Panel affirmed through its meetings that research and the generation and use of new knowledge is at the forefront of the University's priorities. The Panel found that this was a view shared by the leadership and by the academic staff and that it permeated to some extent to the student body.

The relevance that EMÜ gives to these activities is also stated in the Development Plan, where the first strategic area is R&D, with the objective to conduct competitive research at the international level so that by 2025 EMÜ is listed in at least one internationally recognized university ranking. This goal is partly achieved by 2022, as the SER states that the University currently ranks within the range band of 51–100 in the field of agriculture and forestry (QS World University Rankings by Subject), and was recently at 48th position in the world, an achievement worth a commendation as it is unique in Estonia. Besides, "In the field of plant and animal sciences and the environment and ecology, the University is among the 1% of the most cited research institutions in the world", and other areas are highlighted though not ranked (SER, p.9). The University's ranking in other subject areas and overall is much lower.

EMÜ was the Estonian Agricultural University until 2005 and at present its R&D is focussed in areas within Life Sciences related to veterinary, agriculture, forestry and, more recently, other areas linked to those, such as Environmental Sciences. EMÜ is the fourth largest public university in Estonia and undertakes a large share of the research performed in these fields nationwide. Most of this research is strongly linked to societal issues: "sustainable use of primary resources necessary for life and preservation of the living environment", as stated in the SER.

R&D activities have been structured in several academic units in the past. Recently (January 2022), the Senate established a new structure with three institutes: the Institute of Agricultural and Environmental Sciences, the Institute of Forestry and Engineering, and the Institute of Veterinary Medicine and Animal Sciences. Their directors are members of the senior management team. There are currently twenty Chairs that take academic responsibility for specific sub-disciplines across six focus areas (agriculture, forestry, environment, engineering and technology, health and food, and rural economics).

Besides the institutes in which most research activity is concentrated, EMÜ has three research support units ('centres'). The Centre for Renewable Energy and the Research Centre of Organic Farming provide administrative and organisational research support. These two units provide an external face of EMÜ in the fields of biorenewable energy and organic farming. They coordinate activities across EMÜ: organizing conferences, large interdisciplinary seminars and concentrating in other outreach activities as a service to society. The University also has a Research and Development Department that acts as an administrative unit to provide researchers with support and advice on research practice, ethics, cooperation, etc. The Expert Panel met with staff from these centres. Those that the Panel interviewed were confident, competent, and willingly shared their experiences. They demonstrate an understanding of the university's mission and strategy and play their role in achieving EMÜ's strategic ambitions.

EMÜ undertake research and teaching activities in six core areas that include 20 sub-areas. The Development Plan lists a total of 15 main research fields, justified by national or European funding priorities and by the interests and human resources of the University. During the visit it became clear that although EMÜ is a small university with limited human resources for research, it accepts the social responsibility to cover all these fields, many of which are unique in Estonia. Though it recognises that it is very difficult to excel in all these 15 fields, EMÜ considers that maintaining all of them is essential. The recent merging of some units into three institutes (reduced from five) aims at providing a better environment for the improvement of the less competitive research lines through the promotion of collaborations with the stronger groups. The University declares that less competitive research lines are necessary even if their performance falls behind highly successful lines that attract more external

funding and produce more research results that brings them up in international rankings. In this respect, EMÜ monitors systematically a set of performance indicators (publications, projects, contracts, etc.), which show a positive trend, indicating that the staff is actively engaged in research, and endorsed by external research evaluations in 2017 that were positive in all three research fields of the University - life sciences, engineering and technology, agricultural sciences, and veterinary medicine. The leadership of the University also recognises that, besides its main strategic goals, there should be space for the researchers exerting their academic freedom regarding research subjects.

During the visit, the Expert Panel learnt that applied research constitutes about 50% of EMÜ research activities, 30% corresponds to basic research and the remaining 20% relates to services to external entities. In the absence of official statistics, these estimates are based on the financing programmes. EMÜ commented that the distribution of national RDI budget is 40% to the Ministry of Education and Research, 40% Ministry of Economics and Communication and 20% all the other ministries. To this must be added EU funded projects, which include a lot of applied research work packages.

This last part is mostly composed by numerous (about 200) contracts with small enterprises, typical in the size of most companies in Estonia. This fractionated activity imposes high administrative burdens to researchers and support staff. EMÜ has an excellent record of success in securing and delivering EU-funded projects (almost 30 of which are currently active) and is highly successful in securing national projects. However, the proportion of basic vs applied research is low. This may compromise the future development and capacity for overseeing emerging issues at the frontier of knowledge, thus, to lead the solutions that Estonia and the world need in times of change.

Besides these sources of competitive funding, EMÜ receives a basic fund from the government to support research, which, together with other EMÜ assets, constitutes a Baseline Fund that the University uses to help researchers and to promote its strategic goals. A part of this baseline fund is distributed to the three institutes according to several criteria. It includes a flat amount per institute under the management of the Chair, another part that depends on research performance and yet other parts in specific activities. Such activities include rescuing national project proposals that were well evaluated but not granted, or promoting collaborative and interdisciplinary projects (i.e., the Diversity Development Fund for circular economy and future-oriented solutions). Overheads of external projects are allocated to maintain research infrastructures.

Although EMÜ aims at reducing the negative effects of project-based funding and creating more stable funding opportunities, the present status of research funding can maintain the researchers' activities. An issue of deep concern to the leadership of the University is the teaching workload of part of the academic staff, particularly of lecturers that have little time to perform research. Although the institute Chairs have some capacity to lessen their teaching duties and to support and promote their engagement in ongoing projects, this seems to be not enough, and the subject is currently discussed within the university. PhD students are considered as employees (contract junior researchers) and their salaries paid from research project funds (or complemented if they have finance from a state funded positions).

Research ethics is an area of relevance for EMÜ leadership both in general and in relation to its specialization in life sciences. For issues such as animal welfare, they rely on higher regulations from the Ministry of Rural Affairs. The University adheres to the National code of conduct and integrity in research and to good practices common in the different fields. A Gender Equality plan has been

recently put in place, and sex-segregated indicators have started to be collected; the proportion of women at the higher professorial level is similar to other countries, but the Expert Panel noted from a review the data provided that the proportion of women leading projects is higher than usual.

Research is embedded into teaching mostly through studies that form the basis of the bachelor or master's theses.

Conclusions

EMÜ conforms to the requirements of the RDC standard.

Excellence in life sciences research is at the forefront of the University's priorities. This view is shared by the leadership, by the academic staff and it permeates to some extent to the student body. The R&D is speciality focussed, playing to the University's strengths, and thereby strongly linked to societal issues such as the environmental and food security. Applied research constitutes about 50% of EMÜ research activities, 30% corresponds to basic research and the remaining 20% relates to services to external entities. These estimates are based on the financing programmes.

The University's academic structure is well-aligned with priority research themes and the support of teaching by this research. Research is embedded into teaching mostly through the bachelor or master's theses. Twenty Chairs take academic responsibility for specific sub-disciplines across six focus areas. They work within three institutes, the directors of which form half of the membership of the university management team. These new structures represent a reduction in the number of institutes and chairs, bringing greater focus of resources and effort to identified strategic areas of teaching and research. The opportunities for greater interdisciplinary research have been thereby strengthened.

EMÜ has three research support units ('centres'). The staff of the centres have a clear understanding of the university's mission and strategy and play their role in achieving EMÜ's strategic ambitions. The track record in securing national and EU-funded research grants is strong. Besides these sources of competitive funding, EMÜ receives a basic fund from the government to support research, which, together with other EMÜ assets, constitutes a Baseline Fund that the University uses to help researchers.

Three factors inhibit research excellence in some areas. Firstly, the Development Plan lists a wide range of research fields to be covered: 15 in total. Although EMÜ is a small university with limited human resources for research, management accepts the social responsibility to cover all these fields, many of which are unique in Estonia. Though it recognises that it is very difficult to excel in all these 15 fields, EMÜ considers that maintaining all of them is essential. Some research lines are necessary even if their performance falls behind highly successful lines that attract more external funding and produce results that enhance international rankings. Secondly, services to external entities are mostly composed of several hundred contracts with small enterprises in Estonia. This fractionated activity imposes high administrative burdens to researchers and support staff. Thirdly, the teaching workload of some academic staff, particularly of lecturers, leaves little time to perform research. Although the institute Chairs have some capacity to lessen their teaching duties and to support and promote their engagement in ongoing projects, this seems to be not enough.

The University leadership are aware of these factors and are managing these challenges in a balanced way. Further reflection will be required upon the challenges of units that underperform, the difficulties of deepening research excellence if resources are excessively devoted to small scale applied research,

and the lack of equilibrium in teaching loads of early career researchers. EMÜ monitors systematically a set of performance indicators (publications, projects, contracts, etc.), which show a positive trend. External research evaluations were positive for several fields. Nevertheless, the pace of improvement may need to accelerate in a highly competitive world.

Strengths

- The very focused field of EMÜ creates a good environment for national and international collaborations
- Priority research fields are aligned with Estonia needs
- The performance indicators, already good, are constantly improving
- EMÜ benefits from a high number of European projects and contracts with enterprises
- Internal collaborative work and strategic goals are supported by ad hoc Centres and by the Baseline Fund

Areas of concern and recommendations

- A high proportion of research force is devoted to service and applied research vs. basic research, making it difficult to produce high ranking papers and may endanger the future of EMÜ as a driver of future knowledge-based solutions to societal challenges. It is recommended that the university reflect on "academic freedom" in research as a tool to promote change and anticipate the future, and consider the feasibility to establish a resourced plan to promote outstanding creativity in research

Opportunities for further improvement

- Reflect upon units that underperform and on how to raise them up to higher standards, reinforcing activities and collaborations to address heterogeneity in performance among research groups
- Find an equilibrium of research vs. teaching for all staff, particularly for lecturers, and promote their further engagement in research
- Continue and extend present efforts of paying attention to PhD students' academic progress, such as introducing a small panel of tutors for PhD students, unrelated to the supervisor, to conduct annual reviews

1.12 Service to society

Standard:
The higher education institution initiates and implements development activities, which enhance prosperity in the community and disseminate recent know-how in the areas of the institution's competence.
The higher education institution, as a learning-oriented organisation, promotes lifelong learning in society and creates high-quality opportunities for that.

Guidelines:
The HEI contributes to the development of the community's well-being by sharing its resources (library, museums, sports facilities, etc.), by providing consulting and advisory services, participating in the development of non-profit sector and charitable activities, and by organising concerts, exhibitions, shows, conferences, fairs and other events.
The HEI involves alumni in activities aimed at the development of the HEI and the knowledge society.
Employees of the HEI participate in the work of professional associations and in other community councils and decision-making bodies as experts, directing society's development processes as opinion leaders. The impact academic employees have on society is taken into account when evaluating their work.
The HEI has clearly defined the objectives for in-service training, measures their implementation and plans improvement activities. The HEI plans in-service training based on the present and future needs of the labour market target groups. Evidence-based learning supports the learning and self-development of adult learners.

Indicators:
- Number of people in continuing training and other privately financed open forms of study (by responsibility areas or structural units)
- Other indicators depending on the HEI

Evidence and analysis

EMÜ is further positioning itself as the main knowledge centre for agricultural sciences, veterinary medicine, forestry, and environmental sciences as well as rural economics and 'rural engineering' in Estonia. Thereby, one of the EMÜ´s priorities has been to disseminate this knowledge in the society through events, media, continuing education, as well as through involvement in development of national strategies and policy making.

Next to their regular research and teaching activities, EMÜ have a wide range of activities as service to society. These activities particularly include University of Families and Open University, where courses covering all EMÜ fields of competence are offered to everyone of society, from school students to professionals outside of academia. The University organized 121 Open University courses that attracted more than 2739 participants in 2020 (SER, p.68).

Overall, EMÜ has organised 640 information events, seminars, conferences, and trainings for the public between 2018–2021, with the annual number of participants approximately 15,000 (SER, p.66).

Children and youth interested in nature, engineering and food science have the opportunity to participate in the Science School. The EMÜ collaborates for that with basic schools and upper secondary schools (gymnasiums), including Tartu Tamme Gymnasium and Hugo Treffner Gymnasium and 78 students graduated from Science School in 2021.

EMÜ has organized several joint activities with University of Tartu and city of Tartu. These include MTÜ Tartu Welcome Centre, a joint service centre for foreign employees and foreign students, which helps to resolve the issues of persons arriving from abroad, from finding a family doctor to solving social problems. Non-Profit Association Tartu Student Club "MTÜ Tartu Üliõpilasmaja" is established in collaboration with the University of Tartu to support 12 cultural collectives.

Museums, research centres and several other facilities are open to the public or providing services to the public, from individual persons to enterprises. Among them are the animal clinic, sports club, Järvselja Training and Experimental Forestry Centre, Polli Horticultural Research Centre, Rõhu Experimental Station, Võrtsjärve Study Centre, Nature Collections, SA Research Centre of Organic Farming, Centre of Bioeconomy and Torni hostel. Järvselja Training and Experimental Forestry Centre, Polli Horticultural Research Centre, Rõhu Experimental Station, Võrtsjärve Study Centre, and SA Research Centre of Organic Farming.

It is worth accentuating that Järvselja Training and Experimental Forestry Centre, Polli Horticultural Research Centre, and Võrtsjärve Study Centre. Järvselja Training and Experimental Forestry Centre offers to the public a variety of courses, tours, and opportunity to purchase different plants and wood as well as accommodation service. Polli Horticultural Research Centre offers to the public a fruit and berry experimental product development, including juice production, puree, and jam production etc. Võrtsjärve Study Centre is organizing courses to the primary and secondary education institutions, has fishing camps organised for children in summer, as well as has publicly open museum.

EMÜ is also well-known for its animal clinic which is offering treatment to farm, wild and pet animals and birds, as well as exotic animals and birds. The clinic collaborates with other animal clinics and the Tallinn Zoo, and its employees are internationally recognised veterinarians whose professional activities extend even to Africa.

EMÜ also contributes to society more widely by making its Sports Club and the public spaces available to society, including campus disc golf park and ski trail in winter.

Numerical evidence of sharing EMÜ´s resources to the wider community include the very impressive outside visitor numbers at its library (55%) and the Sports Club share of non-university customers (33.2%) (SER, p.65).

EMÜ provides also wide range of services to businesses. In 2021, EMÜ developed 69 projects in collaboration with enterprises. A risk assessment unit was set up at the Institute of Veterinary Medicine and Animal Sciences in 2015 to provide scientific advice in areas that have a direct or indirect impact on food and forage safety, and animal health and welfare. The University staff participate as official consultants for Estonian Rural Development Foundation. Järvselja Training and Experimental Forestry Centre, Polli Horticultural Research Centre as well as Rõhu Experimental Station and offer several training and product development services to private sector. Polli Horticultural Research Centre hosts also "Plantvalor" competence centre, which offers companies the know-how and the

possibility of using equipment to enhance and fully utilise plant material in food and non-food products.

The EMÜ staff is involved in approximately 250 associations, unions, social advisory, and decision-making bodies, as well as actively guiding the development processes and decisions of society as opinion leaders (SER, p.69). For example, EMÜ professors belong to the steering committees and subcommittees of Estonian Ministry of the Environment which work on the national Forestry Development Plan and the development plan for the environment until 2030. The University researchers participate as experts in the Estonian Research Council. The University actively participates in 13 international cooperation networks (SER, p.67).

The University needs to ensure that it is not a victim of its own success. Resources are limited and demands on the service to society are high due to the unique national position of EMÜ. The Expert Panel note the importance of monitoring the usage of field bases between the activities supporting academic teaching and research and activities supporting services to society to optimise use of resources in respect of strategic goals.

Conclusions

The higher education institution conforms to requirements that relate to Service to Society.

EMÜ disseminates knowledge of agricultural sciences, veterinary medicine, forestry, and environmental sciences as well as rural economics and rural engineering in Estonia. This is proactively managed through engagement in societal events, media, and continuing education. Academic staff are involved in professional associations and are actively involved in development of national strategies and policy making.

Lifelong learning opportunities are provided through the Open University. This unit offers the public access to the modules being delivered on EMÜ study programmes. The greater adoption of e-learning technologies in the study programmes should increase the reach of this resource to the public, not least students who dropped out of programmes but who might wish to reengage as mature students in a stepwise completion of their degree studies.

EMÜ facilitates many and varied measures to serve society and disseminate their knowledge in a fruitful way, spanning a remarkable range of needs from children to entrepreneurs. EMÜ has implemented development activities, which enhance prosperity in the community and has made available neccessary facilities as well as human resources to serve the society. They are also insistent in developing these activities further.

Strengths

- The success of EMÜ's many and varied measures has attracted different parts of society into its education activities spanning a remarkable range of needs from children to entrepreneurs
- Proactive measures are resulting in a continuous increase in the number people using their services to society
- The EMÜ veterinary capability is a unique service to Estonian society
- EMÜ´s Science School is a model example for other universities internationally in the attraction of upper secondary school students to STEM programmes and careers

Opportunities for further improvement

- Monitor the usage of field bases between the activities supporting academic teaching and research and activities supporting services to society to optimise use of resources in respect of strategic goals
- Consider further development in the Open University activities to encourage dropouts to return to EMÜ to complete their studies in incremental steps. Such a positive development may require a reorientation of the Open University resource as an even more important service to the University and society
- Consider reaching out more to enterprises and institutions for investment in joint scientific research facilities, located in EMU laboratories or in the enterprises

2. Assessment findings of the sample of the study programmes

2.1. Environmental Protection Bachelor's study programme

The Environmental Protection programme is a bachelor's study of 3 years duration, comprising 180 ECTS. The academic unit responsible for resourcing the programme is the Institute of Agricultural and Environmental Sciences. The Director of the Institute has delegated the planning and use of resources to the Chair of Environmental Protection and Landscape Management, who is responsible for the curriculum.

Admissions in the last five years has been in the range of 32 to 38 students annually. Graduate numbers in the period have ranged from 14 to 21 annually. The drop-out rate has been of the order of 35 to 55%, which represents a major challenge. Approximately one third of admitted students dropped out after Year 1 in the last two years and in 2018/19 just 55% of admitted students at Year 1 graduated with an overall drop-out rate of 35%.

The curriculum is regularly reviewed and updated in order to reflect the needs of the labour market and these developments involve students, external stakeholders and academic staff.

Student satisfaction is good and increasing.

Evidence informing the analysis of the Environmental Protection programme has come from interviews with students, staff, senior staff and external stakeholders. Further evidence is provided by SER Section 4.1.

2.1.1 Planning and management of studies

- The design and development of study programme(s) take into account the expectations of students and other stakeholders, national strategies, legislation and trends in the particular area as well as labour market needs. The level and volume of RDC activities is sufficient and supports the launching of the study programme(s).
- The objectives of study programme(s), modules (including courses) and their learning outcomes are concrete and coherent. The teaching content and methods and assessment criteria and methods support students in achieving their learning outcomes and developing their key competencies. The study programmes support the development of creativity and entrepreneurship and other general competencies.
- The administration of material and financial resources that ensure the design and implementation of the study programme(s) is purposeful, systematic and sustainable. The learning environment, including materials, tools and technology support the students in achieving their learning outcomes.

Evidence and analysis

The objective of the Environmental Protection curriculum is to prepare specialists with diverse knowledge of the effects of natural processes and human activities on biodiversity, landscapes, and the human living environment. This includes knowledge of environmental management, nature protection, usage of landscape and natural resources alongside spatial and landscape planning and measures to improve the state of the environment. In so doing the programme considers national and international strategies and legislation and draws upon national and international examples. The accreditation process revealed that the necessary materials, tools, and technology to deliver the provision are in place and accessible to staff and students.

The curriculum is coherent with learning objectives and learning outcomes aligned to targeted clusters of modules based on learning outcomes. The learning outcomes of the subjects were more clearly linked to the learning outcomes of the curriculum during a review in 2019 (SER, p.70). Assessment strategies are appropriate.

General competencies are developed through a range of modules including practical training, the skills of critical thinking, social competencies, developing cultural and value-based competencies. Entrepreneurial competence is specifically developed in the "Entrepreneurship" module.

The programme provides opportunities for stakeholders and students to contribute to the ongoing development of the provision. This occurs through Programme Committees which consider external stakeholder inputs and student feedback - interviews with students, staff and external stakeholders revealed how they contributed to the curriculum development process. The content of the provision, its teaching methods, assessment strategies and student support are contemporary and appropriate for this interesting degree programme which brings together diverse knowledge of the effects of natural processes and human activities on the environment.

Students who complete the curriculum have developed appropriate competencies, capabilities, and knowledge to enable them to work as nature and environmental protection specialists in the field of environmental management and planning and nature protection, or to progress to further study at master's level.

The curriculum is ambitious and continues to evolve. The University has a wish to better integrate the different levels of learning on the diverse topics of the programme to avoid fragmentation and loss of coherence – knowledge and skills of management and planning (SER, p.70). Discussions with staff reviewed how this is to be addressed and how internal and external stakeholder views will contribute to the process. It is planned to develop larger, more coherent courses to obtain improved integration of knowledge and skills together with better alignment of student workload and ECTS credits in selected subjects.

There is good evidence of progress since the last institutional accreditation, notably in respect of curriculum development and responding to student feedback on a range of issues. There is clarity in the overall approach to design, delivery, and review of the programme. There are substantial elements of reflection present in the self-assessment report and an acknowledgment of the need for improvement in certain areas (SER, p.72). Areas for improvement include a social learning environment; sense of unity; and further development of student recreation and study areas. These

issues are supported by the analysis provided and the Expert Panel note the detailed planned activities to address these issues.

The accreditation process has confirmed that in the planning and management of the Environmental Protection curriculum it meets the expectations of the curriculum standard.

Strengths

- Contemporary nature of the curriculum and subjects of study

Areas of concern and recommendations

- Follow through on planned activities to address the fragmentation of the curriculum through structured staff engagement with students and external stakeholders.

Opportunities for further improvement

- Provide more practical work in the laboratories, study centres like Järvselja and internships
- Continue to widen the range of opportunities for student internships in Estonia and abroad.
- Consider further interdisciplinary use of various laboratories in EMÜ such that students on this programme could connect such laboratory work with their mandatory thesis topics.

2.1.2 Learning, teaching and assessment

- Conditions and organisation of admission ensure fair access to education and motivated student body. Students' choice of specialisation is supported.
- A student-centred approach is used in the studies, aiming at the students to assume responsibility for planning their studies and career and supporting the development of key competencies and achieving the learning outcomes of the study programme.
- Student assessment, including taking accreditation of prior and experiential learning into account, supports the students and corresponds to the learning outcomes. Objective and reliable assessment is ensured.
- The organisation of studies including practical work and training is based on the specificities of students and forms of study and supports the student in achieving the learning outcomes. Opportunities have been established for mobility within Estonia and internationally.
- Support services for students are in place and available for students. Individual development and progress of students are monitored and supported.
- Graduates of the study programme are competitive in terms of their knowledge and social skills both nationally and internationally.

Evidence and analysis

The institutional approach to selection and admissions is fair, being assessed on the basis of the results of Estonian state examinations (SER, p.72). This interesting programme attracts motivated students and there has been an average of 8 applicants per place over the last five years.

The teaching and learning approach is student centred. students are supported by a study organisation specialist; the member of academic staff teaching the subject may reorganise the studies to assist the

student taking into account the student's individual abilities; individual consultations were provided during distance learning due to the COVID-19 pandemic; deadlines for independent work can be renegotiated if extenuating circumstances occur; free Estonian language courses are offered to students whose mother tongue is not Estonian (SER, p.73). Materials and tools to support learning increasingly include digital tools. The specific learning needs of Russian speaking students are highlighted as an issue and is the subject of planned improvement action. There are effective mechanisms for formative assessment and feedback is given to students orally at seminars or in writing. Feedback from fellow students is often used in the learning process (SER, p.74).

Assessment takes account of the need to challenge understanding and to assess competency. This is achieved through a variety of written and practical assessments. The curriculum includes 26 subjects with graded assessment and 20 subjects with a pass / no pass assessment (SER, p.75). The student has the right to contest the grade/assessment in accordance with the procedure specified in the study regulation rules (SER, p.76).

The drop out rate is currently about 30% and is the subject of current attention and further planned action. Measures taken, such as counselling by study regulations specialists, head of curriculum and career specialist have almost halved the drop out rate over the last five years. However, this is a systemic national problem in Estonian HEI's which requires to be addressed at national level, more so than at individual programme level.

Areas for improvements include addressing the dropout rate, better understanding of factors leading to enhanced motivation for students, better use of formative assessments to help shape students' understanding of the expectations of the formal assessment requirements. Strategies are being implemented with the aim of enhancing completion rates. The processes introduced to enhance thesis completion will require regular review to ensure that the improvements required are achieved. As noted above meeting the needs of Russian speaking students has been identified as an improvement action. A notable area for improvement is the intention to provide more opportunities for students to contribute or to initiate R&D activities. The aspiration is appropriate.

The Environmental Protection students who met the accreditation panel were well informed about the direction of their studies and future career, motivated to improve the environment, engaged in their studies and articulate in a foreign language.

Alumni were complimentary about their curriculum and how it had benefited their career whilst external stakeholders confirmed the competitiveness of EMÜ graduates in the labour market.

The accreditation process has confirmed that in the approach to learning, teaching and assessment of the Environmental Protection curriculum EMÜ meets the expectations of the curriculum standard.

Strengths

- Nature and variety of measures to decrease the dropout rate are highly effective
- Competitiveness of EMÜ graduates in the labour market
- Alumni are very satisfied with their learning experience and the extent to which it has benefitted their career

Areas of concern and recommendations

- The drop out or non-completion rate is relatively high by international standards and the highly successful efforts at programme level to halve the rate now needs to be matched by national level action to tackle the systemic issues in Estonia that sustain a high base level in all programmes

Opportunities for further improvement

- Continue development of the curriculum to enhance the presence of global environmental challenges within the provision alongside the long-standing commitment to address Estonia's environmental challenges and opportunities.
- Given the importance of external research funding to subsidise teaching EMÜ is advised to carefully monitor this issue and to be alert to any adverse change in income and have in place plans to mitigate any impact on teaching and student learning.

2.1.3 Development, cooperation, and internationalisation of teaching staff

- Teaching is conducted by a sufficient number of professionally competent members of the teaching staff who support the development of the students.
- Teaching staff follows the principles of academic ethics and the codes of conduct in case of non-compliance.
- Members of the teaching staff participate in international mobility programs which encourage the development of their teaching and RDC activities and the cultural openness of the HEI and the Estonian society.
- The effectiveness of both studies and RDC activities, students' feedback, the effectiveness of supervision, development of teaching and supervision skills, international mobility and entrepreneurial or work experience in the specific field outside the HEI is taken into consideration in evaluating the work of the member of the staff.

Evidence and analysis

Teaching on the programme is conducted by a sufficient number of professionally competent teachers - a team of 40 members of academic staff. Qualification data shows that 23 hold a PhD or equivalent higher degree, 16 hold a master's degree, one holds a bachelor degree. Demographic data indicate an average age is 51 years. (SER, p.77). The SER also presents data for the Chair of Environmental Protection and Landscape Management reporting 32 employees (including 10 who are international) with women providing 47% of the staff group and men 53%. The average age of the staff in this category is 44.6 years.

Academic staff follow the principles of academic ethics and the code of conduct in case of non-compliance with these principles. The results of a survey conducted among the staff of the curriculum

revealed that 74% of the respondents have experience in detecting academic fraud. The the number of fraud cases has slightly decreased, most probably due to increased awareness and the widespread effective implementation of plagiarism detection software at the University (SER, p.78).

International mobility of staff is strong, involving every member of the chair in the last five years and averaging 2.8 business trips per annum (SER, p.78).

Data presented in the SER indicates that research income per FTE increased over the 5-year period. The staff group produced 111 research articles indexed by ISI Web of Science and SCOPUS in the 5-year 2016–2020. The average of 1.85 articles per academic staff member per year is one of the best indicators in the University (SER, p.77). Nevertheless, the international ambition of the University has a strategy that would benefit from a further improvement in the production of peer reviewed output per staff member. Regarding distribution of workload, the teaching workload of academic staff is lower compared to other chairs (SER, p.77). Although this allows the staff to be more active in research and work on applied projects it raises the issue of workload distribution within academic staff in EMÜ. Discussions with staff noted this issue and the Panel learned that actions are underway to achieve a more balanced workload for staff.

Staff evaluation includes a range of performance measures. For example, the impact of the staff development courses, and training is measured by the feedback given by the students to the academic staff and subjects. Participation of academic staff in continuing education courses and training is high and the impact is discussed during the performance reviews (SER, p.77).

The accreditation process has confirmed that EMÜ meets the expectations of the curriculum standard in the development, cooperation and internationalisation of teaching staff contributing to the Environmental Protection programme.

Strengths

- High level of participation of academic staff in continuing education courses
- Internationally active teaching staff with good collaboration networks for joint projects and student exchange

Areas of concern and recommendations

- Continue with planned actions to address the completion of PhDs by lecturing staff whilst regularly reviewing the impact of implemented measures.

Opportunities for further improvement

- As the Environmental Protection curriculum evolves to address contemporary global environmental challenges and introduces new technologies for teaching and research, EMU will need to ensure it has acquired or developed staff with the right skills and capabilities to deliver these new requirements
- Carefully monitor the achievement of a more balanced workload for staff to ensure that the objective is secured

2.2. Animal Science Master`s study programme

The Animal Science programme is a master's study of 2 years duration, comprising 120 ECTS. The academic unit responsible for resourcing the programme is the Institute of Veterinary Medicine and Animal Sciences. The Director of the Institute has delegated the planning and use of resources to an Associate Professor as Head of Curriculum. The curriculum belongs to Agriculture, forestry, fisheries study programme group.

Admissions in the last five years has been in the range of 6 to 13 students annually. Graduate numbers in the period have ranged from 5 to 8 annually. The drop out rate has been of the order of 20 to 75%, which represents a major challenge.

Entry requirements are a bachelor's level degree, higher education acquired by completing a professional higher education curriculum or a qualification equal thereto. In 2018/19 the curriculum was transformed into the block mode. The curriculum is now aimed at preparing specialists and/or middle managers in the field of animal science in a livestock production enterprise, as an official, private entrepreneur or similar positions.

Evidence informing the analysis of the Animal Science programme has come from interviews with students, staff, senior staff and external stakeholders. Further evidence is provided by SER Section 4.2.

2.2.1 Planning and management of studies

- The design and development of study programme(s) take into account the expectations of students and other stakeholders, national strategies, legislation and trends in the particular area as well as labour market needs. The level and volume of RDC activities is sufficient and supports the launching of the study programme(s).
- The objectives of study programme(s), modules (including courses) and their learning outcomes are concrete and coherent. The teaching content and methods and assessment criteria and methods support students in achieving their learning outcomes and developing their key competencies. The study programmes support the development of creativity and entrepreneurship and other general competencies.
- The administration of material and financial resources that ensure the design and implementation of the study programme(s) is purposeful, systematic and sustainable. The learning environment, including materials, tools and technology support the students in achieving their learning outcomes.

Evidence and analysis

The curricula design and development process has evolved from the University's objectives, sectoral competence, labour market needs, strategies of the state and expectations of society. The curriculum is based on up-to-date sectoral know-how and research. The UN SDG's, EU and national "green" strategies and trends were considered when revising the curriculum. Since 2016 various groups of

stakeholders, including students, have assisted in developing the curriculum content. The Expert Panel reviewed the curriculum against the following criteria:

- EMÜ objectives, focus and strategic ambition (EMÜ Development Plan, 2016-2025);
- Activities influencing the updating of curricula in accordance with future work demands and sustainable development objectives (EMÜ Activity Plan, 2021-2025);
- Expectations of society in respect of collaboration with partners, participation in the work of decision-making bodies, professional associations (Activity Plan, 2021-2025); increased environmental awareness of society and contribution to the achievement of sustainable development goals (Green University);
- Green University strategy to 2025 where the principles and lines of action of the Green University promotes sustainable development through research and development, and the integration of the principles of sustainable development into teaching and learning outcomes are defined.

The Panel is satisfied through meetings with alumni, employers, partners, and students that there is evidence of management's responsiveness to feedback loops on their respective expectations for ongoing updating of the curriculum content. Nevertheless, the Panel noted a lack of coherence between the general objective and the content of the curriculum because the subject "Special course in poultry production" (6 ECTS) is elective.

The Expert Panel examined the level and volume of RDC activities in supporting the delivery of the study programme. This was analysed during the meeting with the teaching staff where discussions on activities in various projects and their results took place. The Panel found the academic staff to be active and effective in engaging students in the research projects that are underway in the University. However, the interviews with students revealed that there is no way to measure student achievement in RDC, e.g. by assessing the collaboration success through joint publications.

The ambition of the curriculum developers to be an internationally recognised study programme was evident. This could be appreciated through the developers' efforts to be comparable with the quality of the programmes in the University of Helsinki, the Swedish University of Agricultural Sciences, the University of Aarhus, and the Norwegian University of Life Sciences university programmes when establishing and updating study programme objectives, modules and learning outcomes. The evidence of the 2019 updates the Panel got from the interview with teaching staff were limited to revisions on the content of voluntary subjects – in practice having a slightly different subject title but the same content - due to the low numbers of students and the need to merge their courses with other institute students.

Annex 10 of the SER presents a curriculum that consist of 79 ECTS of speciality modules, 6 ECTS speciality elective module, 5 ECTS optional module and master's thesis – 30 ECTS. The Panel found that the high volume of the compulsory specialty module (79 ECTS) created an inflexible structure, not ideally suited to a student cohort having different starting competences (evidence from discussion with teaching staff and students), to acquire the different competences they need. The courses 'Research methodology and study design in animal science' (4 ECTS), 'Academic writing' (4 ECTS), 'Statistical data analysis' (3 ECTS), and 'Course paper in animal science' (4 ECTS) could be a separate part from the speciality module, as a general part of the curricula. This would benefit the learners

through greater flexibility when dealing with competences, taking into consideration the low number of students.

The study programme includes practical training in farms related to the planned learning outcomes (6 ECTS) and this amount of practical training seems sufficient, although the evidence from students was that the variety and supply of traineeships should be greater, e.g., industrial ones. Several of the students and alumni interviewed carried out their traineeship in the same company as they were already working, which limits the new learning experience.

Together with the curricula management team, the Panel analysed the key competences including competencies for sustainability for learners. It was found that these are adapted to the curricula and aligned with the Learning Outcomes. The teaching staff pointed out that when developing curricula, the management team introduced the subjects 'Animal production and environment', 'Farm buildings and technological equipment', 'Animal welfare assessment', as well as the elective subject 'Production of biogas in agriculture' where the UN SDG are followed in their content. The Panel members appreciate the good start with the curriculum implementing SDG, but as well invite each module / subject owner to take a deeper look at the subject's content and make it more coherent in relation to a) the SDGs (all), and b) the necessary competences for the 21st century: system thinking, anticipatory and critical thinking, strategic, collaboration, integrated problem solving, self-awareness and normative competences and c) assessment criteria / methods that support students in achieving their learning outcomes and developing their key competencies This would strongly support development of creativity and entrepreneurship and other general competencies.

Strengths

- Responsiveness to stakeholders' contribution in programme development, indicating that the feedback system is functioning well
- Motivated and highly satisfied teaching staff

Opportunities for further improvement

- Consider a better integrity of the curricula general objective with the content of the subjects (pay attention to which are mandatory, and which are selective choices)
- Consider the obligatory speciality module (79 ECTS) could be subdivided into smaller, generic and specialty parts, giving students flexibility in building their portfolio of competences according to the competences already acquired
- It is suggested to increase the variety of practical training places available, favouring that in which students who are already working can gain experience beyond the experience of their current jobs
- The curricula could be more orientated towards education for sustainable development; course and module-level learning outcomes should interconnect subject-specific knowledge and skills, sustainability competencies and the 17 UN SDGs
- Consider enabling / strengthening education for sustainability competencies and attributes such as creativity, opportunity recognition, self-determination, and adaptability, as these can be a powerful catalyst for sustainable change

2.2.2 Learning, teaching and assessment

- Conditions and organisation of admission ensure fair access to education and motivated student body. Students' choice of specialisation is supported.
- A student-centred approach is used in the studies, aiming at the students to assume responsibility for planning their studies and career and supporting the development of key competencies and achieving the learning outcomes of the study programme.
- Student assessment, including taking accreditation of prior and experiential learning into account, supports the students and corresponds to the learning outcomes. Objective and reliable assessment is ensured.
- The organisation of studies including practical work and training is based on the specificities of students and forms of study and supports the student in achieving the learning outcomes. Opportunities have been established for mobility within Estonia and internationally.
- Support services for students are in place and available for students. Individual development and progress of students are monitored and supported.
- Graduates of the study programme are competitive in terms of their knowledge and social skills both nationally and internationally.

Evidence and analysis

Admission of students to the programme is set by the admission rules (University Senate) and by the admission schedule (Rector's directive). The weighted average grade at the previous study level is the used to assess admission for graduates of agriculture or biosciences. Graduates from another speciality are required to take an admission test. The Expert Panel noted that this impacts on the design of the curriculum, leading to a compulsory speciality module with a high volume (79 ECTS) so that all entrants are brought to the same level of core knowledge, irrespective of background. The University could consider revising the admission requirements to this master's programme at the applicants' evaluation stage, reflecting more critically on an applicant's existing knowledge and skills. This would benefit the subsequent learning process, reflecting on each student's existing competence level. Furthermore, it would allow scope for inclusion of broader sustainable development challenges into the specialty modules / subjects and strengthening education for sustainability competencies and attributes such as creativity, opportunity recognition, self-determination.

Recognition of previous studies and work experience (RPL) is in place. This is taken into consideration by the RPL Committee of the Institute administering the curriculum for evaluation before the admission period. 'Foreign' qualifications and academic degrees of students are assessed by the admissions committee or the ENIC/NARIC centre if needed.

The Panel learned in meetings with the academic staff that there are different level of competencies of students entering the curriculum, because they come from different universities and different specialities. The University explained the admission practice as follows: "the result of the entrance examination for applying for a master's level can be replaced with the grade of the final thesis of the previous level of education, if the previous speciality corresponds to the applied speciality. Otherwise, candidates will take an entrance examination. The admission information is precisely communicated for each master's curriculum." Thus, the prescribed practice is that students who have completed another field of speciality take an admission test. There was evidence from meetings with students'

representatives that not all applicants to the MSc (Animal Science) programme had taken the entrance examination in cases where, in the Expert Panel's opinion, the applicant's bachelor's degree ("previous speciality") did not correspond with the master's degree programme ("applied speciality"). Not all reasons for decisions are recorded. Students' comments about the programme were broadly positive although some found that the learning process was "too easy", or "not interesting", or "too broad". The Panel considers that this reflects a disconnect in the competence level of the entrants, the admission process, including additional tests, the content of the curriculum, and the modules / subjects.

There is no specialisation as such within the curriculum, although student's interest in a certain farm animal species is related to the master's thesis topic. The University commented that "there is specialisation through the elective courses and the topic of the MSc thesis" but that is not the same point – the description of the programme (SER, Appendix 10) states clearly "There are no specialisations in the curriculum".

When choosing electives and practical training in the speciality, the student can consider the species of animal of interest and the field of livestock production (breeding, nutrition, welfare, behaviour, etc.).

The student-centered approach process for the curriculum was analysed in a systematic way taking into consideration the entry level competence, curriculum structure, content and learning methodologies applied.

Knowing that students having different competency portfolio when they enter the study programme, the Panel recognise the importance for each student to create opportunities for planning of their studies, towards a portfolio of competencies and a career that they aspire to. Therefore, the Panel question whether the compulsory speciality module of 79 ECTS credits is an obstacle for a student-centered approach and achieving the learning outcomes that are determined in the curriculum in such a situation. On the other hand, the Panel note the positive situation (having a low numbers of the entrants in recent years) in which students have a personalized learning experience. There is individual supervision and mentoring from the teaching staff, discussing their prior and experiential learning that can be taken into account and the design of the aspired competencies for their career.

Appendixes 11, 12, 13, 14 and 15 were analysed to evaluate student-centered approach used in the studies. There is evidence of topic discussions, and assignments given to the students while studying the courses (Nutrition physiology and metabolism, Statistical data analysis, Animal welfare assessment, Special course in Beef Cattle Production, Linear models in the estimation of breeding value). The teaching staff that the Panel interviewed pointed out the experimental learning process supporting the development of key competencies and achieving the learning outcomes of the curriculum. In the interviews with students the Panel learnt that some of them have published scientific articles related to their Master Thesis and that several participated in congresses and conferences directly related to the study programme.

Students' assessment is done according to the University Study Regulations, following the principles of the assessment of learning outcomes, having oral and written examinations and assessments, tests, reports, essays, group, and research work. The assessment system differs from course to course. The assessment methods and criteria are chosen based on learning outcomes. Students' representative pointed out that they are informed about the methods and criteria at the beginning of the studies.

The Panel stress how vital is to manage the assessment process, where students' prior knowledge and skills should be taken into consideration, as students come from different universities, and have completed a bachelor's degree in some different areas of studies.

The Panel analysed the uptake of opportunities for student mobility at national and international level. It was concluded that there are opportunities established for mobility within Estonia and internationally. However there was evidence from meetings with students that they are not availing of the opportunities due to the difference in curricula between the host institution and EMÜ, subjects length and content.

The Panel found that the support services for students are in place and available. Students are advised by a study regulation specialist, director of academic affairs and head of the curriculum. Regular meetings with the head of the curriculum take place twice an academic year. The teaching staff noted that due to the low numbers of students they can do more supervision or counselling of those in need – academic or even personal issues. Evidence of the friendly and helpful connections between staff and students came during the discussions with both groups.

The Panel conclude that the general situation concerning the success of the graduates in the labour market is good, and the students are welcomed in livestock production market. The employer representatives pointed out that the graduates of the study programme are competitive in terms of their knowledge, although some noted that social, especially collaboration skills development could be improved (team building, team communication etc).

Strengths

- Practitioners are involved in the studies
- Curriculum is highly appreciated by business representatives.
- Assessment of students is conducted by a team of academics, not just one person
- Individual approach to teaching students
- Some students have published scientific articles related to their Master Thesis, and several participate in congresses related to their Master specialization

Areas of concern and recommendations

- Include broader sustainable development challenges into the specialty modules / subjects and consider strengthening education for sustainability competencies and attributes such as creativity, opportunity recognition, self-determination

Opportunities for further improvement

- Revise the minimum competencies level at entry point and the curriculum content if there is a noticeable trend of decrease in student motivation due to the 79 ECTS learning block
- Gather more student observations on the overall programme, as opposed to surveys of detailed aspects, and reflect on a potential disconnect in the competence level of the entrants, the admission process, including additional tests, the programme outcomes, content of the curriculum, and the module learning outcomes.
- If it is confirmed that the drop-out preventative measures (curriculum in block mode) is not effective while students are working full time during the studies, update the programme

content by introducing more content on sustainability to attract more motivated and loyal students interested in state-of-the-art competencies and attributes

- Consider a greater emphasis on the collaboration competencies (learn from others, understand, and respect the needs, perspectives, and actions of others, deal with conflicts in a group, facilitate collaborative and participatory problem solving)

2.2.3 Development, cooperation, and internationalisation of teaching staff

- Teaching is conducted by a sufficient number of professionally competent members of the teaching staff who support the development of the students.
- Teaching staff follows the principles of academic ethics and the codes of conduct in case of non-compliance.
- Members of the teaching staff participate in international mobility programs which encourage the development of their teaching and RDC activities and the cultural openness of the HEI and the Estonian society.
- The effectiveness of both studies and RDC activities, students' feedback, the effectiveness of supervision, development of teaching and supervision skills, international mobility and entrepreneurial or work experience in the specific field outside the HEI is taken into consideration in evaluating the work of the member of the staff.

Evidence and analysis

The aim is that academic staff teaching at the master's level would hold a PhD degree and professional research experience, while practitioners would hold a master's degree or equivalent. Eleven of the 14 academic staff members have PhD degrees (79%). EMÜ values practitioners involved in teaching process and with the support of the practitioners, it was possible to introduce challenge-based methodology (eg. farm feed nutrients analysis) and broaden the knowledge (eg. future trends analysis) within the subjects.

Positive feedback on satisfaction with the working environment came from the teachers during the interviews. They were positive about the new academic structure (even if they were not affected by the process) that EMÜ management introduced in 2022. They noted that the new recognition system is giving a transparent and clear academic career pathway at the university. They follow the principles of academic ethics and the codes of conduct in case of non-compliance. It was noted that they were pleased with new requirements established in the updated documents, such as the Senate Regulation "Good Academic Practice and Implementation of Principles of Academic Ethics in Estonian University of Life Sciences" that was updated (2020) and the Rector's Directive "Procedure for processing proposals and complaints" (2020). Overall, they were positive about the current situation in the University and felt that their opinion matters. They can communicate with different institute's representatives and their opinion is considered to a substantial extent. Some examples of recent communication with the Institute director to solve urgent issues were presented during the meeting.

The participation rate in international mobility programmes of the members of the teaching staff is at 21%. Involvement in the international reseach project activities is at 36% of those teaching on the programme. These are low levels and the Panel suggest that such international activities could be further developed. Apart from the international activities that assures development of teaching and RDC activities the interviews with teachers (as well data in SER) revealed that there is sufficient measures and resources for self development, and that these options are actively used. Students gave very positive feedback on the teaching staff's commitment to delivering excellent mentoring. The students found the teaching staff to be friendly and motivating.

During the discussions with students the Panel learned that there are “some topics they do not need”, “some topics are not interesting” and “some are interesting”. Clarifying why it is not interesting – the students noted that they did not see the usefulness of the topics. However, other students appreciated broad subjects and declared that “who knows what knowledge you will need in the future”.

Students mentioned that the clarifications linked to the evaluation system could be updated, instead of “pass” or “not pass” they would appreciate more precise evaluations, having a grading system to be used. Students acknowledge the value of practical training and lab work – they were satisfied with it. The Panel got the impression that the student learning experience was a student-centred approach. They emphasized that the teaching process was directed towards them, with discussion-type sessions during the studies, where ‘homework’ must be prepared for the discussions, all tasks given should be overcome alone, or with the help of supervisors.

Strengths

- The new academic organization and recognition system (introduced 2022) has staff ‘buy-in’
- Practitioners bring particular value to the teaching and learning process
- High satisfaction from the students with their teachers’ competence, mentoring roles and open attitude and disposition to help

Opportunities for further improvement

- The academic staff international activities, such as mobility, networking and participation in international research competitive funding could be further developed.

2.3. Civil Engineering (Rural Building) Integrated study programme

The Civil Engineering (Rural Building) programme is an integrated bachelor’s and master’s study of 5 years duration, comprising 300 ECTS. It is one of the only two five-year Integrated programmes in EMÜ. The academic unit responsible for resourcing the programme is the Institute of Forestry and Rural Engineering. The Director of the Institute has delegated the planning and use of resources to the Chair of Rural Building and Water Management, who is responsible for the curriculum.

Admissions in the last five years has been in the range of 28 to 34 students annually. Graduate numbers in the period have averaged 24 annually, decreasing year-on-year from 31 in 2016/2017 to just 13 in 2020/2021 (SER, p.12).

The drop-out rate has been of the order of 15 to 55%, which represents a major challenge. The small number of graduates makes this a big investment for the University.

The financial budget of the Chair is highly dependent on research funding which represents a variable amount annually and is currently 34%. Aligned with the university identity of bioeconomy, the programme provides focus on sustainability in the built environment, through environmental issues in buildings and materials.

The curriculum has recently been updated in the context of Estonian higher education to both align core engineering modules with those of Tallinn University of Technology (TTÜ) while differentiating its environmental and rural engineering specialisation. This has provided greater opportunities for collaboration and rationalisation at national level while firmly 'declaring the space' for an engineering programme in a 'life sciences' specialist university.

Evidence informing the analysis of the Civil Engineering (Rural Building) Integrated study programme has come from the SER Section 4.3 supplemented by interviews with students, staff, senior staff, as well as alumni and other external collaborators.

2.3.1 Planning and management of studies

- The design and development of study programme(s) take into account the expectations of students and other stakeholders, national strategies, legislation and trends in the particular area as well as labour market needs. The level and volume of RDC activities is sufficient and supports the launching of the study programme(s).
- The objectives of study programme(s), modules (including courses) and their learning outcomes are concrete and coherent. The teaching content and methods and assessment criteria and methods support students in achieving their learning outcomes and developing their key competencies. The study programmes support the development of creativity and entrepreneurship and other general competencies.
- The administration of material and financial resources that ensure the design and implementation of the study programme(s) is purposeful, systematic and sustainable. The learning environment, including materials, tools and technology support the students in achieving their learning outcomes.

Evidence and analysis

The design of the five-year programme takes full account of all stakeholders' expectations due to the condition that it is required to meet the professional standard for civil engineers. This takes account of both the requirements of the Estonian Association of Civil Engineers and the framework requirements of the Government of the Republic of Estonia. The curriculum is in accordance with legislative requirements (SER, p.88). In respect of curriculum development, an annual meeting is held

of the Curriculum Development Committee. The membership of the Committee includes the Chair, academic staff, students', and employers' representatives (SER, p.88).

Teaching on the programme is supported by research in engineering and technology, one of six core fields of RDC in EMÜ. The field is subject to regular external R&D evaluation and received a positive decision in its most recent review.

Curriculum development takes into account views from different relevant stakeholders. Particularly impressive to the Expert Panel was the approach of national alignment of curricula leading to synergies with other national HEI's. This allows EMÜ to emphasise the distinctive character of the University's bioeconomy focus, in an engineering context, while teaching of engineering fundamentals to a satisfactory level is assured. Involvement of the University alumni association in directing development was reported as being a relevant role (SER, p.20) but the Expert Panel found that alumni influence on the curriculum development was more ad-hoc than systematic, as revealed during the interviews with graduates and employers ("We are a small country we work together").

The assessment of students is based on assessment criteria approved by the member of staff responsible for the subject. Regarding practical training assessment, the host supervisor from the enterprise gives a written assessment of the student's performance and this is taken into account in the final assessment by the module co-ordinator. The defences of theses are standard practice, through an appointed committee (SER, p.94).

OSKA, the Estonian labour and skills forecasting system, highlights a strong ongoing need in the labour market for graduates in the construction sector, estimating a need for 385 civil engineering graduates annually (SER, p.88). The OSKA Report further highlights that such need will remain the same over the next decade, alerting to the decrease in graduates, at a time where the number of such university graduates nationally does not cover the future labour needs. This was confirmed by the meeting with alumni and external stakeholders. In this context, the programme is an essential provision not only for the regional market but also the national priorities. Combined with the climate change agenda and the UN SDGs, the programme has a role to play in the EMÜ focus on the environment.

The programme outcomes are essentially defined by the need to correspond with the outcomes for the Diploma Civil Engineer in Buildings and Structures (Level 7 Higher Education), while maintaining an overview of similar programmes through comparison with other programmes in the country (TTÜ) and the region (Tampere). With the focus on the construction of agricultural buildings, there are specific modules with emphasis on the bioeconomy and environment (SER, p.92). The curriculum includes development of creativity and entrepreneurship through specific modules such as "From idea to business plan." The structure of the programme is coherent, delivered through a combination of general modules (50 ECTS), specialty modules (190 ECTS), elective modules (18 ECTS), optional subject modules (12 ECTS) and their final thesis (30 ECTS), all with defined learning outcomes (as defined in Appendices 19, 25 and 25.1).

An overview of the curriculum mapping suggests to the Expert Panel that it is possible to provide revisions that will simplify the structure, reducing the number of modules taught, perhaps working collaboratively with other partners.

Material and financial resources are provided to the programme from three sources. Regarding resource management, there is clarity on the distinct roles of the head of chair and the curriculum leader. The first is the budget of the Institute which is shared among the chairs, with an expectation

that approximately one third would be devoted to research and development projects. Modernizing the premises and equipment is resourced from baseline university funding. Finally, application may also be made to the Rectors Fund for innovative developments, such as new technology digital devices and software (SER, p.91). Resources are currently adequate to meet programme needs and will be enhanced by plans to replace laboratory equipment that does not comply with EVS-EN standards (SER, p.92) through requests for relevant funding allocation.

Recent investment in the laboratories has been very beneficial, making EMÜ more competitive, while the restructuring through merging of institutes and phasing out of colleges to form the Institute of Forestry and Rural Engineering has enabled collaborations vertically as well as horizontally. This became evident from the meetings with the various stakeholders, from the Rector to the Directors of the Institutes, as well as the study programme management team.

Collaborations with other institutes across EMÜ and externally are proving to be beneficial. New investment in laboratory infrastructure is significant and supports the EMÜ mission statement, while attracting collaborations with external partners.

Increasing attention is being paid to the learning environment, especially for first year students. An orientation week has been introduced for these students. The current learning environment is a work in progress as lessons from the Covid-19 period are learned. Currently the use of e-learning platforms, digital materials and submission of course work electronically is increasing (SER, p.91).

Strengths

- Investment in the laboratories providing state-of-the-art facilities in wood technologies and building physics
- Curriculum development includes consultation with other national HEI's allowing EMÜ to emphasise the distinctive character of the University's bioeconomy focus, in an engineering context, while the teaching of engineering fundamentals to a satisfactory level is assured
- Collaboration with external companies supporting teaching and final year projects.

Opportunities for further improvement

- Formalise the Alumni Association as a source of advisory group members to study fields in place of ad hoc contacts between staff and the industry

2.3.2 Learning, teaching and assessment

- Conditions and organisation of admission ensure fair access to education and motivated student body. Students' choice of specialisation is supported.
- A student-centred approach is used in the studies, aiming at the students to assume responsibility for planning their studies and career and supporting the development of key competencies and achieving the learning outcomes of the study programme.
- Student assessment, including taking accreditation of prior and experiential learning into account, supports the students and corresponds to the learning outcomes. Objective and reliable assessment is ensured.
- The organisation of studies including practical work and training is based on the specificities of students and forms of study and supports the student in achieving the learning outcomes. Opportunities have been established for mobility within Estonia and internationally.
- Support services for students are in place and available for students. Individual development and progress of students are monitored and supported.
- Graduates of the study programme are competitive in terms of their knowledge and social skills both nationally and internationally.

Evidence and analysis

The admission process is transparent and fair. Places are filled through public competition. The average score from second level education certificate is used to rank applicants. There are specific requirements in respect of competence in mathematics and the Estonian language. Recruitment is a challenge, with low numeracy being one of the main obstacles. To partly address this, EMÜ offer a top-up preparation course for the state exams in mathematics to assist students in meeting the minimum requirements.

There is strong alignment between the research interests of staff and their teaching assignments. External research contracts are in place, along with collaboration with the Institute of Veterinary Medicine and Animal Sciences, and the Chair of Silviculture and Forest Ecology. Students' final work theses are linked to the research interests of the staff and external companies have supported the preparation of theses, as was confirmed by the interviews with staff and students, while companies have also supported with materials and equipment, and have funded student scholarships (SER, p.91).

Wood technology forms a strong part of the research-informed programme that the students work in, as does the work on recycling of glass and textiles in concrete. A thesis on concrete recently won an award from the Estonian Concrete Association in two consecutive years, which highlights the quality of the outputs.

Teaching includes a range of formats. Beyond lectures and laboratory activities, teaching also includes field trips, case study visits, and more innovative activities such as role-playing games. Elective modules also available from TTÜ provide an additional strength of the programme and further cements the collaboration between the two universities.

The assessment methods include a range of types and formats as would be expected for such a programme and are tailored to the learning outcomes and include formative assessment, self-reflection, and peer assessment. An interesting approach is the iterative assessment of safety-critical engineering calculations. The assessor only provides feedback up to the first occurrence of an error

after which the work is returned to the student for correction and resubmission. The iterative cycle then recommences. This encourages accuracy in the first submission (SER, p.94).

A particular strength of the programme is the internships, as alumni and other external stakeholders confirmed. The compulsory nature of the summer internships helps to differentiate from other similar programmes and gives the EMÜ graduates 'two feet on the ground' providing them with a competitive advantage.

Internships are organized through a formal tripartite agreement, which includes a nominated supervisor in the host organization. The internships are preceded by a week of training in the Tartu Vocational Education Center (SER, p.90).

All these underpin a student-centred learning experience, supporting the development of key competencies and achieving the learning outcomes of the study programme.

Accreditation of prior learning is assessed at Institute level by the RPL Committee (SER, p.94).

Particular attention is paid to supporting the students in speciality subjects. These are delivered in both the Estonian and English language to ensure that national and international students are not disadvantaged in the teaching and learning process of complex material. This, however, is very resource-intensive, and against the EMÜ ethos of joint modules. In any case this is a programme with limited mobility outside Estonia, with no exchange students currently.

Opportunities for mobility are available within Estonia but less so internationally. The curriculum has been carefully aligned with TTÜ in respect of basic subjects to promote mobility between EMÜ and TTÜ (SER, p.88). International relations specialists are available to advise students in both the Department of Academic Affairs and the Students Union but there are few international courses that readily align with the 'rural' engineering specialization of EMÜ. Student mobility is predominantly taking place between EMÜ and TTÜ, where there are ongoing collaborations between the two institutions, benefitting from the provision of complementary modules (e.g., students from EMÜ confirmed taking elective module on finite elements analysis at TTÜ).

Support is available through EMÜ career specialists and psychologists. Study plans are negotiated for those who are carrying failed subjects. Support to first year students include a dedicated supervisor per course who monitors student progress until they have passed the subject (SER, p.95). Individual development is supported through mentoring (SER, p.93).

There is an admission of 30-40 students annually, but the dropout rate is around 50%. Different initiatives have been identified to address this: a better description of the study programme, up-to-date information, and specifications on the website along with the unique strengths of the programme. The Expert Panel identified a significant issue during the meeting with the Vice-Rector for Studies: the students may drop out of one programme and join another without any significant financial penalty. This is both wasteful of national resources and devalues the real cost of university education in the eyes of the student. This government initiative, which enables rolling between universities using social guarantees, is counterproductive and increasing pressure to stop this is sensible.

Other initiatives include motivation letters for those that have not returned, closer monitoring of non-submissions to address potential problems, and initiatives to bring students back through

communication with those that have suspended studies to return to the University and graduate (SER, p.96), also discussed with the curriculum management team. Additional initiatives to get more students to return in small steps through continuing engineering education in micro-degree courses and build up the missing credits could be another potential way forward. Although it is early to draw conclusions, it could be that the various measures each have a small effect, with an indication that the dropout rate is slightly decreasing.

In summary, the specialisation in agricultural buildings is not a limitation. There is no major difference in technical competencies between civil engineering graduates of EMÜ and TTÜ as was confirmed by employers who regularly employ graduates from both universities. Graduate attributes of EMÜ are described as "feet on the ground."

Strengths

- Curriculum development in collaboration with other national HEI's leads to ongoing synergies and alignment that strengthens the resources available in EMÜ to optimize the bioeconomy specialization of the engineering programme

Areas of concern and recommendations

- National policy whereby students may drop out of one programme and join another without any significant financial penalty is both wasteful of national resources and devalues the real cost of university education in the eyes of the student. The government initiative, which enables rolling between universities using social guarantees, is counterproductive and all HEI's should seek to collaborate in getting this policy changed

Opportunities for further improvement

- Further highlight the unique strengths and approaches to make this topical programme more competitive in attracting students to an engineering programme deeply rooted in a life sciences learning environment

2.3.3 Development, cooperation, and internationalisation of teaching staff

- Teaching is conducted by a sufficient number of professionally competent members of the teaching staff who support the development of the students.
- Teaching staff follows the principles of academic ethics and the codes of conduct in case of non-compliance.
- Members of the teaching staff participate in international mobility programs which encourage the development of their teaching and RDC activities and the cultural openness of the HEI and the Estonian society.
- The effectiveness of both studies and RDC activities, students' feedback, the effectiveness of supervision, development of teaching and supervision skills, international mobility and entrepreneurial or work experience in the specific field outside the HEI is taken into consideration in evaluating the work of the member of the staff.

Evidence and analysis

In terms of the recent EMÜ requirements for lecturers to have a PhD, currently, out of the 35 staff, only 40% have a PhD (14 no.). Ten members of the teaching staff are working part-time (from 0.1 to 0.9 FTE), two of whom have a PhD. Visiting staff and practitioners are engaged with teaching, to provide the wider industry perspective, while also offering additional training to students. Thus, staff competence in respect of lecturing at university level lags behind international averages if measured by highest level of academic staff qualifications. Improvement in this metric is being aggressively managed by the University with new requirements in respect of recruitment and promotion which are aligned with best international practice.

Of the 55 staff teaching in the curriculum, 33% are female, which is higher than the student equivalent of 16%. Average age is 51.

There are various opportunities for staff to participate in education courses and training, with the expectation that all academic staff participate annually in additional training at least once. Provision for sabbatical leave is once every five years.

The performance of teaching and research is evaluated annually for each staff member. This evaluation is based on metrics including student feedback, research outputs and international mobility, from which career development needs are identified and supported accordingly. Student feedback on the quality of teaching is favourable (SER, p.92). There was also widespread praise for the Head of Curriculum from students, teaching staff and alumni. Graduates who have close engagement with EMÜ commented on witnessing positive changes in the last few years. The university provides support to teaching practice development through a full-time educational technologist (SER, p.93). It is expected that each staff member would devote at least one of their annual training courses to pedagogic skills development (SER, p.97), but as the discussion with staff highlighted it is up to the staff to attend. The Expert Panel noted the high levels of attendance at recent seminars, especially

related to e-learning tools. Fast-tracking of digital technology strategies occurred during Covid-19 mobility restrictions. The Chair has organized Department-specific courses for staff.

Minimum standards for research activity are set. Staff are expected to publish at least one ETIS Category 1.1 article per annum (SER, p.99), which is low. In discussion with teaching staff, it was revealed that average teaching load is high. Although this is not unusual for engineering programmes, loads of 18 to 20 hours/week per semester mean that active research engagement across a full year is very difficult to attain. The development of a workload model for teaching staff at different grades and for different responsibilities could improve the balance and provide incentives for research. For PhD students who are already on a Lecturer's contract, careful negotiation with their Curriculum Leader and Head of the Chair on their teaching load will be required to enable them to complete their PhD. This is particularly critical given the high teaching loads; hence these students will need additional support, so they are not disadvantaged when their five-year evaluation is due.

The percentage of research active staff is currently low. The recently introduced requirements for demonstration of research activity for recruitment and promotion is addressing this. The recent investment in new laboratories ('best laboratories in Southern Estonia' as commented by staff) provide a unique opportunity to increase research not only through contracts with industry but also through involvement with big international research consortia (e.g., European Horizon programmes, etc.). A small number of lecturers without doctoral degrees will be required to enhance their qualifications by the next evaluation in the five-year cycle but some have high lecture loads. There is discretion to rebalance their workload if necessary.

Staff follow the updated (2020) Senate Regulation "Good Academic Practice and Implementation of Principles of Academic Ethics in Estonian University of Life Sciences" which delineates the basic principles of academic ethics and the procedure for handling violations in the University. The ethical standards and conduct of the student learning experience are underpinned by the academic, professional and research culture of the staff. The students are introduced to this in first year through the module "Introduction to the engineering study and engineering ethics". The software used to detect plagiarism is OURIGINAL (SER, p.98), supplemented by other expertise.

Mobility of teaching staff is predominantly related to participation in conferences and workshops for teaching and RDC development, with only limited examples for longer exchanges. The international mobility of staff is mainly in the neighbouring countries, but activity is not at a high level by international comparators. Mobility in international universities is often driven by engagement in international research projects and so EMÜ's strategy in respect of research collaborations will contribute to improvement over time. Earlier recommendations for a bigger involvement of foreign staff in teaching has been addressed through the PhD school of construction and environmental engineering (SER, p.98).

Collaboration with practice is active, enabled by links with alumni. Teaching on the programme is also informed by engagement of staff with industry and professional bodies. These include the Estonian Association of Civil Engineers, Royal Institute of Chartered Surveyors, Estonian National Committee for Mechanics, Estonian Digital Construction Cluster (SER, p.99). Such external links are a strength of the programme and enable the provision of structured internships which provide graduates with a competitive advantage.

Strengths

- The newly developed laboratories provide a cutting edge which should be used to strengthen research activity

Opportunities for further improvement

- Increase research activity in niche areas of environmental engineering through interdisciplinary engagement with life sciences colleagues
- The Institute could consider short term workload model rebalancing to temporarily facilitate the small number of impacted lecturers who need to complete Ph.D. degrees before their next evaluation for reappointment under the new academic career structure

2.4 Veterinary Medicine and Food Science Doctoral study programme

The Veterinary Medicine and Food Science Doctoral programme is nominally of 4 years duration, comprising 240 ECTS. The academic unit responsible for resourcing the programme is the Institute of Veterinary Medicine and Animal Sciences. The Director of the Institute has delegated the planning and use of resources to a Professor as Head of Curriculum, who is responsible for the curriculum.

Admissions in the last five years has been in the range of 3 to 7 students annually. Graduate numbers in the period have ranged from 0 to 4. About 40 PhD researchers are working in the VTMD programme annually. The drop-out rate is variable, case-by-case basis, but the level is high by international standards ranging from 1 case up to as many as 5 cases (12.5%) in some years.

The curriculum has recently been updated to rebalance the distribution of credits from 180 ECTS thesis + 20 ECTS general modules + 40 ECTS speciality modules to 200 ECTS thesis + 40 ECTS modules. The purpose of this was to reduce the volume of compulsory modules and allow greater flexibility for students to make individual study plans in support of their research.

The programme is producing experts to the society and academy in the fields of food and veterinary sciences. According to the EMÜ, about half of the graduates are employed by the society/private sector whereas the other half becomes mainly affiliated to the EMÜ. The theses recently defended in this programme have dealt with the following areas: food technology and safety, contagious animal diseases (including parasites, bacteria, and viruses) and clinical veterinary medicine.

Evidence informing the analysis of the study programme has come from the SER Section 4.4 supplemented by interviews with students, staff, management, alumni, employers, and external collaborators.

2.4.1 Planning and management of studies

- The design and development of study programme(s) take into account the expectations of students and other stakeholders, national strategies, legislation and trends in the particular area as well as labour market needs. The level and volume of RDC activities is sufficient and supports the launching of the study programme(s).
- The objectives of study programme(s), modules (including courses) and their learning outcomes are concrete and coherent. The teaching content and methods and assessment criteria and methods support students in achieving their learning outcomes and developing their key competencies. The study programmes support the development of creativity and entrepreneurship and other general competencies.
- The administration of material and financial resources that ensure the design and implementation of the study programme(s) is purposeful, systematic and sustainable. The learning environment, including materials, tools and technology support the students in achieving their learning outcomes.

Evidence and analysis

There is a clear societal need for the experts trained in the VMTD programme. This became obvious especially while interviewing the stakeholders and alumni. In addition, the research areas of the thesis defended during the recent years demonstrate well that the design and development of the study programme leads to societally relevant PhD research areas. Theses have, among others, dealt with emerging animal diseases, food safety, utilisation of novel antimicrobials in the food chain and clinical veterinary medicine.

The basis of developing the VMTD PhD curriculum lies in the PhD study quality agreement of the Estonian universities (15.01.2020) and it is being continuously monitored by the VMTD curriculum committee. The committee has updated the curriculum and its requirements to meet the needs from the different sectors and to encourage publishing in high impact scientific journals (SER p.100). This has led to positive development in terms of publication activity and publishing in internationally valued scientific series. The average number of WOS articles per PhD thesis has increased (2 and 3.14 in 2016–2018 and 2020–2021, respectively) as have the numbers of articles published in Q1 journals (0.33 and 1.86) and in Q2 journals (0.67 and 1.43). The curriculum committee has also compared the VMTD curriculum with the corresponding curricula of the neighbouring universities in Latvia, Sweden, and Finland (SER p.100) to benchmark it internationally.

During the student interview, it become clear that the study modules are useful, and it is possible to find suitable courses supporting PhD studies. The nominal length of this study programme is 4 years consisting of 240 ECTS of which 40 and 200 ECTS are allocated to studies and doctoral thesis research, respectively. Reduction of the studies from 60 to 40 ECTS has been done in 2020 and this decision has made the curriculum more flexible for the PhD researchers.

Within the 40 ECTS, 12 belong to the general module of mandatory courses of research ethics and intellectual property rights and the rest can be chosen between two themes: university teaching and entrepreneurship. Students must choose 5 ECTS either from the courses related to university teaching or entrepreneurship. According to the student interview, the study programme is balanced, and it

supports the development of creativity and entrepreneurship of the students. The speciality module (16 to 21 ECTS) consists of courses related to the subjects chosen by the needs of a doctoral researcher and the mandatory mathematical statistics/models and research communication areas. All students must make a presentation in an international conference and according to the student interview, there are resources to support their travelling and registration costs making this feasible. Research and writing of the thesis consist of 200 ECTS not divided between any specific learning outcomes which is quite typical in the European academic tradition. The satisfaction of PhD students with the curriculum on a 5-point scale was 4.5 in 2020/2021 (SER). The average in the last three academic years has been greater than 4.

The infrastructure needed for the VMTD programme is sufficient. A workplace with a computer is available for PhD students at the chairs; rooms for leisure are available in all study buildings (SER p.102). Library and its databases, laboratories and other facilities are providing a suitable learning environment for the doctoral researchers. During the student interview, supervisors and the PhD coordinator were mentioned several times as key persons in enabling a positive and constructive learning environment.

PhD studies are based on research and development projects and the subsequent publication of results. The prerequisite for supervising a student is an active research project guaranteeing funding for the PhD project (SER, p.101). During interviews with the Vice-Rector of research and PhD researchers, the Panel learnt about the annual income status of the PhD researchers. In the government, DORA and those positions related to a research project of a supervisor, a minimum of €660/month (netto) is guaranteed for the PhD researcher and most often this funding is compensated to the final level of at least €1000 monthly. In addition, the PhD researcher may obtain a grant from a foundation to be able to study. Based on many interviews with the Panel (PhD researchers, supervisors and stakeholders), this level of income is not sufficient to allow fulltime PhD research. This results in a situation whereby additional income must be earned by working outside the EMÜ. It is likely that this is the main reason leading to the long study times and rather high drop-out rate of the programme. In addition, formal and open salary category system for PhD researcher seems not to exist and thus the final salaries vary between the PhD researchers. In an open and fair culture, the doctoral researchers have the possibility to earn increasing salaries as they become more skilful researchers. The level of final salary should not depend on the source but the competence of a doctoral researcher.

Strengths

- Learning environment of the VMTD programme receives high student satisfaction
- Societal impact of the programme is clear, and the research questions of the theses have addressed societally relevant topics

Opportunities for further improvement

- Realise the planned (SER p. 103) analysis and subsequent improvement of the social status of PhD researchers to allow full time studies

2.4.2 Learning, teaching and assessment

- Conditions and organisation of admission ensure fair access to education and motivated student body. Students' choice of specialisation is supported.
- A student-centred approach is used in the studies, aiming at the students to assume responsibility for planning their studies and career and supporting the development of key competencies and achieving the learning outcomes of the study programme.
- Student assessment, including taking accreditation of prior and experiential learning into account, supports the students and corresponds to the learning outcomes. Objective and reliable assessment is ensured.
- The organisation of studies including practical work and training is based on the specificities of students and forms of study and supports the student in achieving the learning outcomes. Opportunities have been established for mobility within Estonia and internationally.
- Support services for students are in place and available for students. Individual development and progress of students are monitored and supported.
- Graduates of the study programme are competitive in terms of their knowledge and social skills both nationally and internationally.

Evidence and analysis

Admission of PhD studies is project based so the funding for research is guaranteed to some extent. Admission requirements, schedule and criteria are published online on the EMÜ website, and the admission is organised via online platforms. For the candidates applying from universities other than EMÜ, an interview (by three-member committee) takes place to assess the professional competence, motivation to study and vision to conduct research (SER p.103). During the Panel meeting with the teachers, the experts asked why this interview is not taking place if an applicant has graduated from the EMÜ. The answer "we know them" raised some concerns about equality in the process. The Expert Panel felt that all applicants should be interviewed in a similar manner during the admission process regardless of their university of graduation.

The organisation of studies is student-centred. All PhD researchers have their individual study plans created in consultation with their supervisors. This student-centred plan is tailored to fit the needs of the student. EMÜ has paid attention to the need of PhD researchers to obtain courses building up general competences. PhD researchers can, among others, participate in the article writing camps to get support to the challenges related to academic writing. Specifically: (a) the PhD student chooses a topic that offers professional speciality-related challenge, meets his / her research interests and motivates him/her; (b) An individual plan is compiled by the supervisor and the PhD student together, taking account of the student's abilities and prior qualifications; (c) specific areas in which the student needs additional courses and training are identified; (d) the student chooses suitable subjects from the general and specialty modules of the curriculum; (e) the student takes prescribed subjects in mathematical statistics, and either didactics or entrepreneurship. The needs of the student are met through EMÜ based resources or by those in other national and international HEI's and research organisations (SER, p.104). There is a good balance between the obligatory and elective courses and the student feedback to the Panel was positive.

A system recognising RPL is available and operates, the number of doctoral students' RPL applications has increased from nine applications in 2017/2018 to 23 in 2020/2021 (SER p.104).

Assessment of the PhD researchers takes place in association with the courses they study, during the meeting of the annual evaluation committee and finally by the PhD defence committee and opponent. The annual evaluation is based on an individual plan approved by the supervisor and the council of the institute. This plan sets out in detail the objectives and the stages required to achieve them and is used during the annual assessment meeting. During the interview with teachers, it became evident that this meeting is more than just an evaluation and it clearly contains elements related to feedback, follow up and support. Thus, it is likely that these evaluations are also encouraging for the PhD researchers and may provide a possibility to give feedback of the supervision. EMÜ and the PhD researchers might benefit from developing the annual evaluation towards more proactive analysis and support. Instead of an annual evaluation, many universities assign a follow up and support group that works throughout the PhD study period and meets at least once a year. The development of an online feedback or study follow-up platform that would collect the main parts of the annual discussion between the supervisor, PhD researcher and institution is recommended by the Expert Panel and is also planned according to SER (p.104).

The rules and practices in assembling a defence committee and selecting the opponent take fairness into consideration and there are clear rules recognising conflict of interest. A defence committee consists of two non-university members and additional members according to the specifics of the speciality. Opponents are always recruited outside Estonia.

The graduates are competitive in the market and the programme has gained strong interest among international applicants, with total numbers admitted doubling in the last five years (SER, p.103).

As a minor comment related to the use of the term principal investigator (PI) in SER (p.104), PhD researchers are not PIs no matter how independent they might be. Usually, this title is reserved to those who supervise and fund PhD researchers through projects.

Opportunities for further improvement

- Interview all applicants in a same manner regardless of the origin of their MSc degree.
- Consider assigning a dedicated support and follow-up group that follows the progress of a PhD research throughout the study period.
- Make sure that the PhD researcher has a possibility to give feedback of the supervision without the supervisor being present.
- Develop of a common supervision feedback system as already envisioned in SER (p. 104).

2.4.3 Development, cooperation and internationalisation of teaching staff

- Teaching is conducted by a sufficient number of professionally competent members of the teaching staff who support the development of the students.
- Teaching staff follows the principles of academic ethics and the codes of conduct in case of non-compliance.
- Members of the teaching staff participate in international mobility programs which encourage the development of their teaching and RDC activities and the cultural openness of the HEI and the Estonian society.
- The effectiveness of both studies and RDC activities, students' feedback, the effectiveness of supervision, development of teaching and supervision skills, international mobility and entrepreneurial or work experience in the specific field outside the HEI is taken into consideration in evaluating the work of the member of the staff.

Evidence and analysis

Only academic staff with PhDs teach in the VMTD curriculum. Forty-nine members of the academic staff are assigned to the VMTD programme. These comprise 34 fulltime and 15 part-time (SER p.106). Taking the number of PhD researchers into consideration, there are enough teachers to keep a successful curriculum going. Supervisors compete annually and the best supervisors fulfilling the criteria, including indicators and research funding, will be successful in obtaining students. The selection of supervisors is based on the requirements for supervisors established at the EMÜ (SER p.106) and the increasing co-supervising (experienced and younger academics) has been found fruitful. There are ways to obtain training to improve supervising skills. The training needs of the VMTD academic staff are identified during the performance review and evaluation conducted at least once a year or at least every five years in case of a working contract with an unspecified term. The University Personnel Department offers training that complements teaching and supervision skills and develops digital competencies (SER p. 107).

Recently more foreign students have applied for PhD researcher positions. This demonstrates that the VMTD programme is internationally known and increases the level of internationalisation in the EMÜ. The programme has reacted to equality, diversity, and inclusion (EDI) needs by promoting awareness and knowledge of different cultures and practices. During the interview of the academic staff, aspects related to academic ethics were discussed and the persons interviewed demonstrated their knowledge of the work of the ethical committee and academic ethics while teaching, conducting research and publishing scientific papers.

Staff follow the updated (2020) Senate Regulation “Good Academic Practice and Implementation of Principles of Academic Ethics in Estonian University of Life Sciences” which delineates the basic principles of academic ethics and the procedure for handling violations in the University.

The EMÜ supports academic staff mobility and has set a goal that >90% of academic staff should visit a foreign university at least once every five years. This goal has been met (SER p. 107) but the Covid-19 pandemic has naturally taken its toll. ASTRA development programme project "Value Chain Bioeconomy" has resources to support international visits of the personnel. The following programmes have allowed visits of the academic staff: Erasmus+, COMBIVET, EEA/Norway Grants Scholarship Programme, SEARMET. Lecturers of the VMDT curriculum participate in international collaboration projects and have been co-supervisors, opponents, and members of defence committees of foreign universities.

During the interview of the staff the Panel learned that supervisors were satisfied with their evaluations and salaries. They stated that the new career model is open, and one knows what one should do to rise to the next level. During several interviews, the practice to name co-supervisors was found good. It teaches the young supervisors valuable skills and helps to balance the workload of the more senior ones. The need to help younger supervisors to advance their careers in terms of improving publication records has been recognised. In addition, there are quite many narrow fields in the DTVM programme. To keep all relevant fields going and to keep up with the multidisciplinary in the programme may warrant more collaboration within and outside of EMÜ.

Opportunities for further improvement

- Support young academics in establishing research groups and becoming active supervisors to keep up with needs of the potentially still growing programme
- Continue an increase collaboration within and outside of the EMÜ due to the small size of certain academic areas and to increase multidisciplinary in PhD research