



**STUDIJŲ KOKYBĖS VERTINIMO CENTRAS
CENTRE FOR QUALITY ASSESSMENT IN HIGHER EDUCATION**

CHEMISTRY FIELD OF STUDY

**OVERVIEW REPORT for Chemistry STUDY FIELD
2026 year of the evaluation**

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I. INTRODUCTION

The overview is based on the external quality evaluation of the Chemistry study field in the following Lithuanian Higher Education Institutions (HEIs): Kaunas University of Technology, Vilnius University, and Vilniaus Kolegija.

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

Comprehensive external evaluation reports, including strengths and weaknesses and concluding with recommendations, were prepared separately for the relevant cycles of study and included evaluation marks. This overview focuses on the main findings of the external evaluation of the Chemistry study field from a general point of view.

Based on the findings of the Chemistry study field evaluation, the expert panel has come to a decision to give positive evaluation to the following HEIs and study cycles: Kaunas University of Technology for the first and second study cycles, Vilnius University for the first and second study cycles, and Vilniaus Kolegija for the first study cycle.

Based on the findings of Chemistry study evaluation, the expert panel has come to a decision to not to give negative evaluation to any of the four HEIs visited in either first or second study cycles.

Following the external evaluation reports of study fields, SKVC takes a decision to accredit the study field and cycle for 7 years.

II. OVERVIEW BY EVALUATION AREAS

This section of the Overview report presents the expert panel's overarching observations on the Chemistry field of study in Lithuanian HEIs. It sums up the most positive aspects of the study field as well as the key areas requiring improvement, based on the analysis conducted across all seven evaluation areas.

1. STUDY AIMS, LEARNING OUTCOMES AND CURRICULUM

The study aims within the Chemistry field across Lithuanian higher education institutions demonstrate a clear intention to align programs with national academic standards, labour-market expectations, and institutional missions. These aims provide a general direction for developing graduates who possess the scientific knowledge, analytical skills, and professional attributes necessary for further study or employment. In a broad sense, the study aims to frame the overall purpose of each program and establish the intended level of preparedness expected of students upon completion.

Learning outcomes represent the operational expression of these aims and describe, in measurable terms, what students should know, understand, and be able to demonstrate. Across the institutions, outcomes typically address foundational scientific knowledge, practical laboratory competencies, problem-solving abilities, and the development of personal and social skills relevant to both academic and professional contexts. As overarching statements, they articulate the expected progression of student capabilities throughout the study cycle and ensure that programs remain coherent, transparent, and aligned with broader qualification frameworks.

The curriculum functions as the structural mechanism that enables students to achieve these aims and outcomes. In a general sense, it comprises the organisation of modules, teaching methods, assessment strategies, practical training, and opportunities for personalisation. Through its design and implementation, the curriculum ensures logical progression from introductory to advanced topics, integrates theoretical and practical learning, and supports students' development as competent and independent learners. Collectively, the study aims, learning outcomes, and curriculum form an interconnected foundation that guides program quality and underpins the overall effectiveness of the Chemistry field in higher education.

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

The integration of scientific research within higher education serves as a foundational mechanism for ensuring that study programs remain current, relevant, and aligned with disciplinary developments. In a broad sense, strong research–teaching linkages help institutions maintain academic vitality by exposing students to contemporary knowledge, advances in methodology, and emerging scientific questions. This connection enriches the intellectual environment and reinforces the principle that higher education is not only about transmitting established knowledge but also about engaging learners in ongoing processes of discovery and inquiry.

At the level of program design, research plays a central role in shaping the structure, content, and pedagogical choices that underpin the learning experience. Curricula informed by active research cultures tend to integrate analytical thinking, evidence-based reasoning, and practical investigation, allowing students to develop skills consistent with the expectations of modern scientific practice. Opportunities for involvement in research projects, laboratory work, field studies, creative

exploration, or innovation initiatives support students in acquiring deeper disciplinary understanding and transferable competences. In this way, research becomes a dynamic pedagogical tool that supports meaningful, experience-based learning.

Institutionally, strong research–higher education linkages also contribute to strategic development, academic quality, and societal impact. Research-active environments help attract qualified staff, foster international collaboration, and strengthen partnerships with industry and other external stakeholders. These relationships support knowledge exchange, enhance the visibility of institutions, and ensure that study programs respond to broader scientific, technological, and cultural developments. By cultivating an environment where research and education mutually reinforce one another, institutions promote continuous improvement and ensure that graduates are well-prepared for further study, professional advancement, and participation in knowledge-driven societies.

3. STUDENT ADMISSION AND SUPPORT

Student admission processes form a crucial foundation for ensuring that higher education institutions enrol learners who are prepared to benefit from their chosen study programs. In a general sense, transparent and well-communicated admission criteria help applicants understand expectations, make informed choices, and enter higher education on an equitable basis. Effective admission systems also contribute to the coherence of study programs by aligning incoming student competencies with the level and structure of the curriculum, thereby supporting both academic quality and student success from the outset.

Once students are admitted, comprehensive support systems play an essential role in enabling them to navigate the academic environment and achieve meaningful progress. Broadly speaking, student support encompasses academic advising, access to learning resources, psychological counselling, financial aid mechanisms, career guidance, and opportunities for personal and professional development. These services help to ensure that students are not only able to meet academic requirements but also equipped to balance their broader responsibilities, engage with the learning community, and address difficulties proactively. A strong support system recognises the diverse needs of students and creates conditions in which all learners can thrive.

Student admission and support structures also contribute to the wider institutional mission by promoting student retention, equity, well-being, and long-term employability. When institutions build clear pathways for academic development, monitor student progress, and maintain inclusive, accessible services, they strengthen the overall quality and effectiveness of the learning environment. In a broader perspective, these processes reflect the institution's commitment to student-centred education and continuous improvement. By aligning admission practices with robust support systems, institutions help ensure that students are well-prepared, well-supported, and empowered to succeed throughout their studies and into their future careers.

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

Teaching and learning form the core of the higher education experience, shaping how students engage with disciplinary knowledge and developing the skills required for academic and professional success. In a broad sense, effective teaching encompasses thoughtfully designed learning activities,

clear links between intended outcomes and instructional methods, and an overall environment that encourages inquiry, reflection, and active participation. Higher education institutions, regardless of their profile, benefit from cultivating teaching practices that combine theoretical foundations with practical application, ensuring that students progressively gain confidence in navigating both conceptual frameworks and real-world contexts.

Student assessment plays a central role in supporting the teaching and learning process by providing structured opportunities for students to demonstrate their understanding, reflect on their progress, and receive feedback that guides further development. Across institutional settings, assessment systems function most effectively when they are transparent, aligned with learning outcomes, and varied enough to capture different dimensions of student performance. This may include written examinations, practical tasks, project work, or independent research. By ensuring coherence between assessment approaches and the competencies students are expected to achieve, institutions help maintain academic integrity, uphold standards, and foster students' growth as independent learners.

Graduate employment outcomes provide an important indicator of how well teaching, learning, and assessment processes collectively prepare students for life beyond their studies. In a general sense, strong employment results reflect the relevance of curricula, the effectiveness of institutional support structures, and the degree to which programs equip graduates with both specialised knowledge and transferable skills. By maintaining close engagement with employers, monitoring labour-market trends, and offering students opportunities to connect academic learning with professional experiences, higher education institutions help ensure that graduates are well-positioned to transition successfully into diverse career pathways. Over time, this contributes to the broader societal role of higher education in fostering innovation, responding to economic needs, and supporting lifelong learning.

5. TEACHING STAFF

Teaching staff play a central role in determining the overall quality of higher education, as they are responsible for shaping the academic environment and supporting students in achieving meaningful learning outcomes. At a general level, effective teaching staff combine subject-matter expertise with the ability to communicate complex ideas, foster critical thinking, and guide students through both theoretical and practical dimensions of their discipline. Their professional competence forms an essential foundation for maintaining academic standards and ensuring that learners receive a rich and intellectually stimulating educational experience.

Beyond individual expertise, the collective profile of teaching staff reflects an institution's broader capacity to deliver high-quality programs. A well-balanced academic community benefits from diversity in qualifications, experience, research activity, and pedagogical approaches. Continuous professional development, whether through further training, participation in scholarly activity, engagement with industry, or collaboration with peers, helps teaching staff stay current within their field and adapt to evolving educational expectations. Institutions that invest in staff development and create supportive working conditions contribute to teaching practices that remain dynamic, reflective, and responsive to students' needs.

Teaching staff also serve as important contributors to the long-term development and reputation of their institutions. Their involvement in academic leadership, curriculum design, research initiatives,

and external partnerships strengthens the institution's capacity for innovation and quality improvement. At an overarching level, the effectiveness of teaching staff is not only connected to their individual skills but also to the institutional structures that enable collaboration, recognise excellence, and support career progression. By ensuring that teaching staff are well supported, appropriately qualified, and encouraged to engage in continuous development, higher education institutions enhance the overall integrity and vitality of the teaching and learning environment.

6. LEARNING FACILITIES AND RESOURCES

Learning facilities and resources form an essential foundation for delivering high-quality higher education, as they provide the physical and digital environments in which students engage with knowledge and develop practical skills. In a broad sense, well-designed laboratories, classrooms, libraries, and study spaces support both independent and collaborative learning, while also ensuring that students have access to equipment and materials appropriate to their field of study. The availability and accessibility of these resources significantly influence students' ability to participate fully in the learning process.

Beyond physical spaces, modern higher education increasingly relies on digital tools and platforms that enhance teaching, learning, and information management. Virtual learning environments, online databases, specialist software, and communication tools expand the possibilities for flexible and remote engagement, enabling students to learn in diverse and adaptive ways. These resources help institutions respond to evolving educational needs and provide students with opportunities to develop competencies that are relevant in contemporary academic and professional settings.

At an overarching level, the quality and sustainability of learning facilities and resources reflect an institution's commitment to continuous improvement and responsiveness to change. Regular investment, strategic planning, and alignment with technological developments ensure that facilities remain fit for purpose and supportive of long-term academic goals. By maintaining environments that are safe, modern, and conducive to learning, institutions create the conditions necessary for students and staff to thrive and contribute meaningfully to the academic community.

7. QUALITY ASSURANCE AND PUBLIC INFORMATION

Quality assurance processes play a crucial role in maintaining and enhancing the standards of higher education by ensuring that programs operate effectively and align with established benchmarks. At a general level, internal and external quality assurance mechanisms help institutions evaluate their practices, identify areas for development, and strengthen the consistency and transparency of educational provision. These processes support accountability and continuous improvement while fostering trust among students, staff, and wider stakeholders.

Public information forms an integral part of quality assurance by ensuring that prospective and current students, employers, and partners have access to clear, accurate, and up-to-date details about study programs and institutional performance. Transparent communication about learning outcomes, admission criteria, study structures, and evaluation results enables informed decision-making and supports the overall accessibility of higher education. In this way, public information contributes not only to institutional reputation but also to equitable participation and student empowerment.

Ultimately, strong quality assurance and public information systems reinforce the credibility and integrity of higher education institutions. By continually reviewing their activities, engaging with stakeholders, and sharing essential information openly, institutions help ensure that educational provision remains relevant, responsive, and aligned with broader societal expectations. These practices underscore a commitment to quality culture and foster an environment where continuous enhancement is embedded in everyday institutional life.

III. RECOMMENDATIONS

STRATEGIC RECOMMENDATIONS FOR THE CHEMISTRY FIELD OF STUDY

Strategic recommendations at an institutional level (for HEIs)

1. Strengthen institution-wide pedagogical innovation, curriculum coherence, and responsiveness to student feedback

HEIs should adopt a more systematic and institution-wide approach to modernising teaching and learning. This includes improving curriculum coordination to address recurring issues such as uneven workloads, overlapping module content, and limited visibility of transversal competences. Enhanced responsiveness to student feedback and stronger integration of interactive and research-informed pedagogy would support more consistent learning experiences across faculties and programs.

2. Invest strategically in research capacity, staff development, and long-term infrastructure planning

Institutions should prioritise long-term workforce and infrastructure development aligned with their research ambitions and program profiles. This includes strengthening academic staff qualifications, expanding opportunities for pedagogical and research-related training, and implementing clear strategies for equipment renewal and the acquisition of modern analytical technologies. Such investment is essential to sustain high-quality, research-driven education at universities and to enhance the applied research capacity of professional colleges.

3. Enhance internationalisation, mobility pathways, and multi-stakeholder collaboration

To improve competitiveness and broaden student and staff opportunities, HEIs should deepen international cooperation through structured mobility windows, joint research and teaching initiatives, and stronger engagement with European and global networks. At the same time, strengthening partnerships with industry, employers, and social partners will support curriculum relevance, promote innovation, and diversify career pathways for students. Increasing English-language preparedness and communication of mobility options would further enhance participation and accessibility.

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

1. Strengthen and Formalise National Career Pathways that Recognise Teaching Excellence Alongside Research Output

Lithuania has already introduced a performance-based funding model and a dedicated career path for teaching in higher education, as noted in the OECD's review of recent reforms. To build on this momentum, the Ministry should formalise a national framework for academic career progression that equally values pedagogical competence, teaching innovation, and curriculum leadership, particularly in professionally oriented fields. While teaching-focused roles exist, they remain insufficiently embedded in university promotion systems, where research output still predominates. A national framework linked to the existing pedagogical training ecosystem (e.g., KTU's Centre of Educational Competence, accredited by the Ministry), would address this imbalance and support teaching excellence as a core driver of study quality across all HEIs.

2. Expand National Investment Mechanisms Beyond Research Infrastructure to Include Teaching-Focused Staff Development and Modern Educational Facilities

Lithuania has already demonstrated strong commitment to research development through the Lithuanian Research Infrastructures Roadmap 2024, which outlines long-term priorities for national RI investment and international cooperation. However, these mechanisms primarily support *research infrastructure* and do not adequately address gaps in teaching-related infrastructure, pedagogical upskilling, or capacity-building in colleges. The Ministry should therefore complement existing R&D-focused programs with dedicated national funding for modernisation of teaching laboratories, digital learning environments, and continuous pedagogical training, ensuring all HEIs—including applied colleges—can meet evolving scientific, technological, and labour-market expectations. Such a program would align naturally with Lithuania’s broader education reform agenda under the National Progress Plan (2021–2030), which aims to improve teaching and learning effectiveness system-wide.

3. Strengthen National Support for Internationalisation, Mobility, and Industry–Education Partnerships by Addressing Persistent Structural Barriers

Lithuania’s national education strategies emphasise mobility, digital transformation, and the attractiveness of teaching and learning environments (e.g., the 2021–2030 Education Development Program and EdTech initiatives). Lithuania also performs well in ERA-related researcher mobility indicators and maintains active international engagement through national R&I strategies. Yet, evaluation results show that student mobility remains low, especially in laboratory-intensive programs, due to timetable rigidity, limited English-language readiness, and insufficient financial or structural incentives. To build on existing national priorities, the Ministry should introduce targeted measures such as mobility windows tailored for STEM fields, national English-language upskilling initiatives, expanded micro-grant schemes for short-term mobility, and strengthened incentives for industry–HEI collaboration. These interventions would not duplicate existing initiatives but would help convert strategic intent into actual student participation and partnership depth, particularly in applied study fields where mobility and industry integration lag policy ambitions.

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

Based on the findings, it is recommended that the Centre for Quality Assessment in Higher Education (SKVC) further align its evaluation processes with national reforms by more systematically incorporating teaching excellence and pedagogical innovation into its assessment criteria, building on Lithuania’s recent introduction of a performance-based teaching career path and ongoing pedagogical enhancement initiatives. SKVC would also benefit from strengthening its use of data-driven decision-making through longitudinal monitoring tools, cross-institutional benchmarking, and transparent indicator dashboards, complementing national efforts to develop a more coherent and evidence-based quality assurance ecosystem under the National Progress Plan and OECD-supported reforms. In addition, SKVC could enhance the relevance and international alignment of its evaluations by formalising broader stakeholder involvement, including employers, alumni, international experts, and social partners, in methodology development and thematic analyses, thereby supporting Lithuania’s wider strategic goals for international cooperation and strengthened innovation ecosystems within the European Research Area.