FEEDBACK

on the analytical report 'Analysis of the results of institutional, programme and first-cycle programme accreditation (2024–2025)', prepared by the Independent Agency for Quality Assurance in Education (IQAA)

Reviewer: N.B. Beisenkhanov, Dean of the School of Materials Science and Green Technologies

Introduction. Relevance and significance of the material presented

This analytical report, prepared by a team of authors led by G.T. Zhumadilova, PhD in Chemistry, constitutes a fundamental study summarising the results of external quality assessment procedures in higher education for the years 2024–2025. Against the backdrop of global transformation in higher education, the transition to a closed-loop economy and the need for technological sovereignty, issues relating to quality assurance in educational programmes (EPs) within the engineering and natural sciences sector are becoming of critical importance.

For the management of the School of Materials Science and Green Technologies, this document is of not merely descriptive but also significant strategic value. The report demonstrates a high degree of methodological rigour: the shift from a simple description of shortcomings to an in-depth comparative analysis (compliance matrices, heat maps) makes it possible to identify systemic gaps between stated institutional policies and their actual implementation at the level of departments and educational programmes.

1. Assessment of the methodology and analytical tools

The high value of the analytical tools employed by the authors cannot go unmentioned. In particular, the construction of a heat map based on a weighted index of compliance with standards is an outstanding methodological solution. This tool allows 'blind spots' and risk areas to be identified visually.

As Dean of a specialised school of engineering and natural sciences, I would like to draw particular attention to the fact that the standards 'Student-centred learning, teaching and assessment' and 'Academic staff' show the greatest variation and the highest number of comments. In the context of training specialists in materials science and green technologies—where there is an inseparable link between fundamental science, laboratory practicals and innovative projects—these findings require immediate translation into the internal university audit process. The heat map clearly demonstrates that the existence of formal regulations (at the institutional level) does not guarantee their effective implementation, owing to the specific resources and staffing capacity of individual programmes.

2. Analysis of the identified problems through the lens of the engineering and technology profile

The typological analysis of the comments from external expert groups (EEGs) presented in the report resonates with the internal challenges facing the School of Materials Science and Green Technologies.

Firstly, staffing levels and the research activity of academic staff. The authors of the report rightly note the low level of publication activity in the Scopus and Web of Science databases and the limited involvement of academic staff in grant-funded projects. For our School, where research is the driving force behind updating the content of our disciplines (particularly in such dynamic fields as new composite materials, hydrogen energy and waste utilisation technologies), this poses a critical risk. The VEG's recommendations on stimulating research activity and attracting foreign scientists are fully in line with our strategy. However, the report rightly points to the need for a balance: a lecturer in materials science must be not only a researcher but also a practitioner. The shortfall identified by the VEG in the participation of practising specialists from relevant industries in

the teaching process requires us to review the mechanisms for engaging engineers from leading manufacturing and environmental companies to deliver masterclasses and supervise project work.

Secondly, resource provision and digitalisation. The Expert Group's observations regarding the shortage of modern laboratory equipment and the low level of digitalisation in the educational process are particularly acute for 'green technologies'. Modern materials science is impossible without digital twins, computer modelling of material properties (for example, using molecular dynamics) and work on high-precision equipment. The report serves as an external validation of the need to further invest in our laboratory facilities and to integrate elements of e-learning and virtual laboratories into course syllabuses.

Thirdly, student-centred learning and project-based learning. The authors note a lack of clear differentiation in assessment criteria and weak curricular and methodological support for practical placements. In response to this, the School must strengthen the project-based learning component: introducing mini-projects and team assignments based on real-life business case studies (including those relating to environmental audits and the development of resource-saving technologies), which, incidentally, is recommended by the VEG for undergraduate programmes.

3. Engagement with stakeholders: from formality to a systematic approach

I would like to express my particular gratitude to the authors for their in-depth analysis of engagement with stakeholders (Section 1.6, Table 2). The analysis matrix shows that the problems are predominantly process-related: engagement does exist, but it is not systematised and lacks an evidence base.

For the School of Materials Science and Green Technologies, employers (metallurgical, mining, energy and environmental holding companies) are the main clients for the competences on offer. The IQAA report confirms our own conclusion: we need to move from employers' occasional participation in the review of study programmes to their systematic involvement in the design of elective courses, the development of assignments for industrial placements and joint research work (contract-based topics). The International University of Engineering and Technology's successful practice of organising employer forums, as mentioned in the report, serves as an excellent benchmark for our School.

4. Characteristics of the initial educational programmes

The analysis of initial educational programmes (Sections 1.4 and 1.5) constitutes a unique part of the study. The proportion of such programmes (7.5 per cent) and their concentration in the fields of 'Engineering, Manufacturing and Construction' (29.3 per cent) confirm the trend towards the introduction of new technical specialisms.

The authors' warning about typical risks at the design stage (staff shortages, difficulties in recruiting students, and a lack of solid justification for demand) is extremely important. Launching new programmes in the fields of 'green chemistry' or 'environmental protection technologies' requires enormous resources. The report demonstrates that, at the initial accreditation stage, higher education institutions often face a gap between ambitious sustainable development goals and their actual material and technical infrastructure. This compels us to review our internal procedures for approving new study programmes: only those programmes that have letters of guarantee from industrial partners confirming the readiness of practical training facilities and potential employment opportunities should be permitted to launch.

5. Constructive suggestions and comments on the methodology for future research

Despite the exceptionally high standard of the analysis presented, as the head of a specialist school, I would like to offer a number of suggestions for developing the IQAA methodology in future reporting periods (2026–2027):

Integration of the Sustainable Development Goals (UN SDGs). In the context of the global trend towards a 'green' agenda, it would be appropriate to highlight, as a separate analytical section or

a cross-indicator to examine how accreditation standards take into account the integration of sustainable development principles and environmental ethics into the content of study programmes (not only in the natural sciences, but also in the humanities).

Deepening the analysis of interdisciplinarity. Modern technologies (including materials science) lie at the intersection of disciplines. It would be useful to analyse how higher education institutions overcome administrative barriers when creating interdisciplinary study programmes and minor programmes, as the VEG notes their limited availability.

Infrastructure benchmarking. The heat map shows overall figures; however, for engineering schools, it would be useful to stratify the data, taking into account the cost and complexity of the laboratory equipment required for different groups of specialisms. Comparing the resource base of IT programmes and chemical technology programmes 'on an equal footing' may obscure the true extent of the shortfall.

Analysis of academic mobility in technical sciences. The report correctly notes its limited scope. However, for the natural and engineering sciences, outgoing mobility often requires expensive consumables and access to unique facilities abroad. Separate recommendations need to be developed for the development of virtual and internal mobility for technical specialisms.

Conclusion

To summarise, it should be noted that the analytical report 'Analysis of the Results of Institutional, Programme and Initial Programme Accreditation (2024–2025)' is a mature, in-depth and practice-oriented piece of work. The document is free from the excessive bureaucracy characteristic of some reporting materials and focuses on the essence of quality assurance processes.

The report serves as a reliable guide for deans and programme directors, enabling them to shift their focus from 'preparing for the accreditation process' to 'continuously creating value for students and the labour market'.

Dean of the School of Materials Science and Green Technologies, KBTU JSC **N.B. Beisenkhanov**

'13' 07 2026