



STUDIJŲ KOKYBĖS VERTINIMO CENTRAS

KAUNO TECHNOLOGIJOS UNIVERSITETO
PROGRAMOS *Cheminė technologija ir inžinerija*
(valstybinis kodas - 612H81001, ankstesnis – 61205T102)
VERTINIMO IŠVADOS

EVALUATION REPORT
Chemical Technology and Engineering
(state code - 612H81001, previous - 61205T102)
STUDY PROGRAMME
KAUNAS UNIVERSITY OF TECHNOLOGY

Grupės vadovas:
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Išvados parengtos anglų kalba
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DUOMENYS APIE ĮVERTINTĄ PROGRAMĄ

Studijų programos pavadinimas	<i>Cheminė technologija ir inžinerija</i>
Valstybinis kodas	612H81001
Studijų sritis	Fiziniai
Studijų kryptis	Chemija
Studijų programos rūšis	Universitetinės
Studijų pakopa	Pirmoji
Studijų forma (trukmė metais)	Nuolatinės (4), iššęstinės (6)
Studijų programos apimtis kreditais ¹	160
Suteikiamas laipsnis ir (ar) profesinė kvalifikacija	Chemijos inžinerijos bakalauras
Studijų programos įregistravimo data	2009 rugpjūčio 31 d.

¹ – vienas kreditas laikomas lygiu 40 studento darbo valandų

INFORMATION ON ASSESSED STUDY PROGRAMME

Name of the study programme	<i>Chemical Technology and Engineering</i>
State code	612H81001
Study area	Physical sciences
Study field	Chemistry
Kind of the study programme	University studies
Level of studies	First
Study mode (length in years)	Full – time (4); continuous (6)
Scope of the study programme in national credits	160
Degree and (or) professional qualifications awarded	Bachelor in Chemical Engineering
Date of registration of the study programme	August 31, 2009

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I. INTRODUCTION

The first-cycle study programme *Chemical Technology and Engineering* in the field of Chemical and Process Engineering is now provided by the Faculty of Chemical Technology at the Kaunas Technical University (KTU).

When realising the study programme, the Faculty includes staff and facilities of other related Faculties of KTU.

The programme was registered as Chemical Technology and Engineering in 2009.

The first self-assessment report of the study programme was performed in 1999 and the external evaluation gave some important recommendations for the degree improvement.

The programme has been accredited in 2000.

The students completing the four years studies programme are awarded the Bachelor's qualification in chemical engineering. During the assessed period, the continuous studies have been provided for two years only and there are no graduates yet.

II. PROGRAMME ANALYSIS

1. Programme aims and learning outcomes

The programme aims and learning outcomes are defined at a satisfactory level, but they need some clarification of the differences between applied chemistry and chemical engineering ; the information in English needs improvements.

The programme aims and learning outcomes are based on the academic view of the industrial chemistry (or technical chemistry), a deeper insight into chemical engineering is necessary.

The programme aims and learning outcomes are related to the industrial chemistry with some important connections with the Applied Chemistry Degree (KTU).

The name of the programme, its learning outcomes, content and the qualifications offered need to be checked with the international, and European views on the subject.

Main strengths and weaknesses

Strengths

1. KTU shows a long history from 1940 in the technical studies in the field of Chemistry in Lithuania.
2. The Chemical Technology and Chemical Engineering degree shows an external quality assessment in 1999, with serious recommendations, starting with the change of the name in the programme, and many other suggestions.
3. A programme in the field of chemical and process engineering science has been developed and they present it through a self evaluation report after two years of teaching.

Weaknesses

1. The learning outcomes of the programme are not clear, they are very general. They need the matching with the objectives of international Bachelor programmes in Chemical Engineering
2. Formal agreements and/or support from the chemical and related industry in the identification of learning outcomes have not been found and it seems to be necessary in order to clarify some specific contents of the programme related with the industrial Chemistry.
3. References to external programmes of chemical engineering in Europe or in the World to scope the programme are missed

2. Curriculum design

The curriculum design meets legal requirements according to the received information on the regulations.

The study subjects and/or modules are too spread making difficult the connection with the learning outcomes.

The content of the subjects is consistent with the type and level of the studies;

The content and methods of the subjects are connected to the achievement of the intended learning outcomes as concerns theoretical knowledge of graduates; more attention would be recommended to ways to achieve and measure the defined practical skills and general competences;

The scope of the programme may be sufficient to ensure learning outcomes, practical placements need to be longer and more targeted; also more attention could be given to coverage of the necessary practical skills in a broader sense as the course description are mainly listing the learning outcomes that belong to a domain of knowledge.

The content of the programme does not reflect the latest achievements in science/engineering..

Main strengths and weaknesses

Strengths

1. The curriculum design has been integrated in a vertical way (subjects) and in an horizontal way (learning outcomes) (SER,39)
2. The curriculum design has been translated to the ECTS system

Weaknesses

1. The curriculum design is spread in many different topics from the very beginning losing a general view of the topics in the learning outcomes (modules).
2. A distribution of modules in order to be related with the learning outcomes is missed
3. The integration of the practices (laboratory and industrial) in the curriculum is not properly clarified.

3. Staff

The study programme is provided by the staff meeting the required qualifications.

The qualifications of the teaching staff are adequate to ensure learning outcomes.

The number of the teaching staff (referred to the number of students) is adequate to ensure learning outcomes.

Teaching staff turnover is able to ensure an adequate provision of the programme; young doctors seem to be very motivated by the programme.

The higher education institution creates conditions for the professional development of the teaching staff but some improvement could be done towards updating the staff in the international development of the subjects.

The teaching staff of the programme is involved in research related to the specific chemical(or process) industry sectors identified in the study programme..

Main strengths and weaknesses

Strengths

1. The number and qualifications of the staff is appropriate.
2. Young staff is active and may ensure an adequate provision to the programme
3. Some staff is involved in specific research directly related to the study programme under review and several of them shows industrial experience. They are leading the main national Journal in Chemical Technology of Lithuania.

Weaknesses

1. The staff shows an important specific knowledge of chemical technologies but a lack of expertise in chemical and/or process engineering.
2. They behave properly at a regional (national) level but the international relationships need improvements.

4. Facilities and learning resources

Taking into account the number of students (30-50) the facilities are adequate both in their size and quality as long as it concerns the contact hours; some shortage is noted concerning facilities for autonomous individual or team work. According to students' opinions group work can be done only in dormitories or at home.

The main buildings and laboratories are now under construction or renovation.

The teaching and learning equipment (laboratory and computer equipment, consumables) are mostly adequate both in size and quality; however some shortage is noticed concerning modern equipment in laboratories where students are expected to get hands-on experience necessary for future employment.

The higher education institution has not achieved fully adequate arrangements for students' practice.

Teaching materials (textbooks, books, periodical publications, databases) are adequate and accessible.

Main strengths and weaknesses

Strengths

1. They have a long history (from 1940) of facilities and learning resources to teach chemical technology
2. A strong renovation of the buildings is taking place
3. An important amount of new modern equipment is expected to come

Weaknesses

1. An strategic development plan of infrastructures and facilities has not been found in the documents or meetings. The planning should be connected to the demands of the Degree.

5. Study process and student assessment

The admission requirements are clear.

The organisation of the study process ensures an adequate provision of the programme and the achievement of the learning outcomes defined in course descriptions, but there is some gap concerning cross-cutting learning outcomes and general competences.

Students are encouraged to participate in research, but the practical work in the industry is not clearly organised.

Students' information on opportunities to participate in student mobility programmes are theoretically appropriate but the results are poor.

The higher education institution ensures an adequate level of academic and social support.

The assessment system of students' performance is clear, adequate and publicly available, with some shortcoming as concerns the envisaged practical skills.

Professional activities of the majority of graduates meets the programme providers' expectations, but mainly after the MSc degree.

Main strengths and weaknesses

Strengths

1. The students are encouraged to participate in applied research activities and the final bachelor projects show appropriate contents.
2. The assessment system of students performance is satisfactory for all parts

Weaknesses

1. The main group of students follow to a Master degree, but the aim of the programme is to incorporate directly to the industrial jobs.

6. Programme management

Responsibilities for decisions and monitoring of the implementation of the programme are allocated according to internal normative documents of the University.

Monitoring and quality management are not considered specifically in the programme management

Information and data on the implementation of the programme are regularly collected, however they are not much analysed and used for improvement of the curriculum;

The outcomes of external evaluations of the programme have been used for the improvement of the programme; the curriculum has changed since the previous evaluation.

One group of stakeholders, namely employers are not clearly involved.;

The internal quality assurance measures are effective and efficient as far as the provision of teaching and student assessment is concerned, but an effort is needed towards step by step implementation of the principles of internal quality assurance as explained in Standards and Guidelines for Quality Assurance in the European Higher Education Area (*ESG*).

Main strengths and weaknesses

Strengths

1. The outcomes of the first external evaluation (1999) have been considered for the improvements in the new programme.

Weaknesses

1. The internal and external evaluation of the programme has not included enough industrial stakeholders, considering the scope of the programme.
2. The internal quality assurance system has not a formal development in the degree, some data are collected for the quality assessment but a systematic data analysis and/or evaluation procedure has not been found.

III. RECOMMENDATIONS

- 3.1. An analysis and study of the European Federation of Chemical Engineering (EFCE) recommendations: http://www.efce.org/Bologna_Recommendation.html for the first and second degree in chemical engineering is strongly recommended in order to clarify the aims and learning outcomes of the KTU degree in chemical engineering.
- 3.2. An organisation of the subjects in modules connecting the subjects in the curricula with the learning outcomes is recommended
- 3.3. A deeper insight into the integration of theory and practice (laboratory and/or industrial) in the curriculum and learning outcomes is necessary
- 3.4. An exploration of the possibility to share some modules of knowledge with the Applied Chemistry degree is advisable
- 3.5. Establish closer technical and/or academic contacts with international partners for staff and students exchange
- 3.6. Try to reach the goal and increase the dissemination of the information that KTU is the institution of excellence in Lithuania for Chemical Engineering at a national and international level.
- 3.7. A strategic plan to develop specific infrastructures and/or facilities for the chemical engineering studies
- 3.8. A specific plan to adapt learning resources to the new Information Technologies is recommended.
- 3.9. Perform an analysis, of the study process and student assessment related to the employers demand
- 3.10. Introduce more stakeholders (industry and/or related services) in the evaluation procedures
- 3.11. Develop and apply a specific systematic internal quality assurance system for the degree.

IV. GENERAL ASSESSMENT

The study programme Chemical technology and engineering (state code – 612H81001, previous – 61205T102) is given **positive** evaluation.

Study programme assessment in points by fields of assessment.

No.	Evaluation Area	Evaluation Area in Points*
1.	Programme aims and learning outcomes	2
2.	Curriculum design	2
3.	Staff	3
4.	Material resources	3
5.	Study process and assessment (student admission, study process student support, achievement assessment)	3
6.	Programme management (programme administration, internal quality assurance)	3
	Total:	16

*1 (unsatisfactory) - there are essential shortcomings that must be eliminated;

2 (satisfactory) - meets the established minimum requirements, needs improvement;

3 (good) - the field develops systematically, has distinctive features;

4 (very good) - the field is exceptionally good.

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