European Chemistry Thematic Network Association

Site Visit Report

For the application for the

CHEMISTRY EUROBACHELOR® LABEL

of the

Samara State Technical University

for the study programme

Master of Chemistry
Chemical technology "Intensification of oil refining and petrochemical processes"

The meeting started at the Faculty of Chemistry, Samara State Technical University, Samara, 12.04.2021 at 9h00 in room 202 (offline-online).

The site visit was carried out partly online on the ZOOM platform. The review was organized jointly with the Russian accreditation agency AKKORK, the Russian members of the reviewers' team were directly at the university.

Composition and Affiliation of the Site Visit Team

Pavel Drašar
Prof. Dr., UCT Prague, Vice President of ECTN, Scientific Secretary of the Czech Association of Scientific and Technical Societies (ECTN expert).

Soloviev Mikhail Yurievich
Ph.D. (Chemistry), Vice-Rector for Academic Affairs of the Yaroslavl State Pedagogical University named after K. D. Ushinsky (representative of the academic community).

Bermeshev Maxim Vladimirovich
Doctor of Chemical Sciences, Deputy Director of the Institute of Petrochemical Synthesis named after A. V. Topchiev of the Russian Academy of Sciences (representative of the employers' community).

Oleg Korovin
4th year student of the Bachelor's programme "Energy and resource saving processes in Chemical technology, Petrochemistry and Biotechnology" of the RUDN University of Russia (expert from the student community).

Background of the Visit

History of the University

Samara State Technical University has existed for over 100 years. It was founded in 1914. During its existence, the university has changed several names. At the beginning it was called Samara Polytechnic Institute. In 1934, several educational institutions were merged. As a result, the Middle Volga Industrial Institute was formed. The next important event in the history of the university took place in 1935. The educational institution was given a new name – Kuibyshev Industrial Institute named after Valerian Vladimirovich Kuibyshev. It was reorganised in 1962. Realisation of educational activities were continued by Kuibyshev Polytechnic Institute (KPtI). In 1991, the university repeatedly changed its name. KPtI was renamed to Samara Polytechnic Institute. A year later, the educational institution received the status of Samara State Technical University. SamSTU continues its work to this day. In 2014, it was included in the list of the best universities of the CIS.

History of the Faculty of chemical technology goes back to 1935 when three previously independent technical colleges became a single Mid-Volga industrial institute. In the Mid-Volga Industrial Institute joined the Faculty of Chemistry as the Faculty of Chemical Technology. University itself was established in 1914, now there is over 3500 staff and almost 20k students.

University does not hold any EuroLabel.

University has good scientific position, yearly there is in average over 100 publications databased in the Web of Science (with growing tendency), some of them in journals with highest profile and in domestic and foreign collaboration; most of them in the field of technology

There was very precisely prepared self-assessment report. Study programmes are containing all required chemical disciplines. There has to be appreciated the enthusiasm of the University administration and teaching staff in reaching the best status and quality of education. Students well prepared in individual technical and chemical disciplines. There should be appreciated the good proficiency of students we met in English language, good ability of the students we met to communicate, esp. the 1st cycle (BSc study) group and good and vital contact with the graduates from the past on important positions in industry.

On the other hand, the team found that students, despite the good knowledge in the disciplines, are not able to apply the knowledge in broad scope of chemical disciplines and generally natural sciences or general life, students had problems in understanding safety. Seemingly, students do not have enough practical (hands-on) training and experience, possibly even in temporal (sandwich) industry placements. Students shall improve their ability to work with information.

University seemingly uses “credits” simply recalculated from contact hours not as real workload measure (ECTS credits) where students shall have their influence on their value, based on their educational experience.

Statistical data

Master programme Energy and resource saving processes in Chemical technology, Petrochemistry and Biotechnology is being implemented at the Chair of Chemical Technology and Industrial Ecology of the Institute of Oil and Gas Technologies.

Total number of students at the university for the academic year 2020-2021
17 009 students

Distribution

Level	Number of students	%
Bachelor students	12 368	72,6
Specialties students	2 207	13,0

Master students	2 067	12,2
Postgraduate students	367	2,2

Structure
4 Institutes
11 Faculties
68 Chairs
5 Research and project institutes
28 Scientific and engineering centres
17 Educational buildings

Assessment criteria

1. Basic parameters (tick the block field as □):

a) □□90 ECTS **credits**; □□120 credits; □□other ..... credits;

b) □□there are required "**bridging modules**" for some bachelor graduates;

c) □□**master thesis** carries at least 30 credits;

d) □□during the programme there is enough of the **practical training** (hands-on);

e) □□master thesis contains **experimental** part;

f) □□students are proficient in **English language**;

g) □□**ECTS credits** are used and calculated as workload;

h) □□**ECTS grading** (ABCDEF) is used; □□**ECTS grading** (ABCDEF) is not used and corresponding transfer table is/will be used and published in every Diploma Supplement and in student exchange documentation;

i) □□**Diploma Supplement** in EU style is/will be automatically given to every graduate for free;

j) □□System of **Quality assurance** is implemented.

2. Judging the Quality of the programme: "Fitness for Purpose"

It is documented that the programme is designed and aligned with the content of professional standards and generalized labour functions in connection with the (potential) employers. The curriculum reflects the correlation of disciplines and competencies that should be mastered by a student within the programme.

3. Structure

The structure of the programme is reasonably balanced and as it is stated above fits to the purpose. The programme provides 4 modules. The programme includes 21 disciplines and 6 practical trainings. There are 9 disciplines assessed in the form of an examination, and 3 disciplines that assessed in the form of a pass-fail test with a grade; 9 disciplines assessed in the form of a pass-fail test and 6 practical trainings assessed in the form of a pass-fail test with a grade. The minimum scope of a student's optional programme is 14 credits. Students are given a choice of 3 out of 7 elective disciplines, and a choice of optional disciplines. An individual path is implemented within the framework of work experience internship: master's scientific-research work of students. Number of credits for final work – 6.

4. Language

Language of instruction is Russian. All basic educational literature is provided to students in Russian. Students make presentations in Russian, in addition to presentations for the disciplines: Foreign language in the professional field, fundamentals of technical translation, foreign language in chemical technology. As additional language courses, etc. an optional discipline is provided: Business foreign language. Our experience was that students speak English well.

5. ECTS and Student Workload

Students spend 17 weeks in the 1st, 2nd, and 3rd semesters on classroom training, and the entire 4th semester on a FQW (14 weeks). It is 66 weeks in total. The study load is 51,6 hours per week on average, including solitary work and electives, of which 12,7 hours are in-class learning (in accordance with the educational standard, the volume of contact work should be at least 60% of the total time for the implementation of disciplines/modules). One credit

corresponds to 36 hours, which includes all possible types of classes, including self-tuition for tests and examinations, the time for which is allocated in proportion to the workload.

University seemingly uses “credits” simply recalculated from contact hours not as real workload measure (ECTS credits) where students shall have their influence on their value, based on their educational experience. Despite the fact the “credits” are just values recalculated from contact hours the credits are distributed in reasonable way.

6. Modules and Mobility of students and staff

As it was already stated, modules and courses are reasonably distributed and planned. However, sometimes the non-integer and low credit value raised discussion. Learning outcomes, with the exclusion of safety and practical skills are reasonable. Mobility of students is possible в течение всего периода обучения and, in some cases, there is an exchange over the border. No course units/modules are defined as “non-transferable”. Internships for master’s students are carried out using the funds of SRs implemented at the chairs. Students in the master’s programme have the opportunity to improve their competencies in the implementation of scientific researches and communication competencies that include communication in one of the main European languages.

7. Methods of Teaching and Learning

Methods of teaching and learning are to some extent “classical”. There should be recommended that the education goes more “in context” and “hands on”. The mentoring system is implemented through the institute of curators of academic groups. Students are notified of the existence of the institute of supervising at the first organizational meeting. During the academic year, a curatorial hour is held at least once a month. As the practice of real project activities is introduced and developed, online training is used mentoring in the format of guiding project student teams (project mentor), tutoring for project activities and mastering online courses.

Classes dedicated to solving problems and discussing relevant professional tasks, are implemented in all disciplines of the programme to one extent or another, as well as within the framework of project (research) work of students. SamSTU uses e-learning technologies and distance learning systems. Access to the educational electronic resources of SamSTU is open from any computer connected to the Internet. For online testing according to the study years, the base of test tasks and computer-based testing system of SamSTU are used. Master’s thesis is usually carried out in the form of a scientific research work in order to confirm competencies in the field of working with scientific and technical information, designing and implementation of experimental work related to the specific process of oil refining or petrochemistry, solving applied or essential tasks of oil refining and petrochemistry, application of computational and experimental methods, processing of experimental data, outcome analysis, drafting of a manuscript of a scientific-research work and presentation of a work results.

8. The resources available for this programme (laboratories, library, ICT, advanced instrumentation)

From the documentation, it is seen that the library and ICT resources are available in reasonable quality and amount. Educators expressed in the discussion that there may be more advanced pieces of equipment for research and practical education and the current shall be better utilised. In the course of the discussion with the teaching staff, it was noted that although the university possesses all the equipment necessary for the educational and research processes, its accessibility is different for representatives of various study programmes.

9. Laboratory safety

After discussions with students, the team felt that there shall be given more stress and care to the question of laboratory safety.

10. Assessment Procedures and Performance Criteria

Assessment procedures are normal, verbal, written etc. Performance criteria are “local” and shall follow the suggestion in the next paragraph. Assessment procedures are normal, verbal, written etc.. Oral examinations are predominantly used for vocational disciplines.

Credits can be set based on the results of the student's work in the semester. In the disciplines of the general education and fundamental module (1 - 2 courses), it is envisaged to use an accumulative system to assess learning outcomes, when conducting exams (tests). The results of the current monitoring of the progress within the semester are taken into account. When conducting the exam, depending on the scope of the discipline and the number of students, an additional 1-2 teachers may be involved as examiners. For oral examinations, the minimum preparation time is 30 minutes, and their time, regardless of the form (oral/written), is not more than four hours.

When passing an examination, a student is provided with a feedback in the form of correct answers. Written examinations are implemented both in the form of tests and written review works, the assertion of a grade lies in the area of a teacher’s responsibility. The working programme of each discipline contains a list of questions for the examination (past-fail test), examples of examination papers, information on the form of the examination (past-fail test) conducting, the criteria for issuing grades. A past-fail test or examination can be conducted in-person or using distance learning technologies (in this case, the identification of a student’s personality is provided). Anonymous grading is performed in the case of administering an examination (pass-fail test) in the form of the automated computer-based testing. Examination boards are created for the second retaking of an examination (pass-fail test), in the case of a failing grade based on the results of the taking and first retaking of an examination (pass-fail test). A Course Project is graded according to the defense results.

The programme of State Final Examination contains requirements for a FQW and criteria for its assessment, developed with due consideration to the opinion of employers’ representatives.

11. ECTS Grades

ECTS credit allocation tables are used both for exchange and non-exchange students. Credit allocation tables are presented in a transcript (a document issued based on the results of a training within the exchange programmes) and the Diploma Supplement for students undertaking an internship. University shall include the local to ECTS grading “translation” table in the Diploma Supplement and in results transfer documents of exchange students.

12. The Diploma Supplement

As part of the practice that has established at the university, the European Supplement is drawn up on an individual request of any university graduate on the blank forms of the Spanish company Signe, S.A. The Supplement describes the level, status, content and outcomes of the received education in Russian and English. Additional information about the holder of the diploma and his qualifications, as well as the content and learning outcomes in credits of the European Credit Transfer System (ECTS) is provided in the document in English. SVT draws the attention of the university that every student from the course with EuroLabel must get the Russian/English Diploma Supplement automatically and free.

13. Quality Assurance

There is in place regular monitoring of all aspects, students, teachers, departments and procedures. Admission to training in the programme is performed as a result of complex testing in the vocation-related disciplines and provides for the enrollment of students with a sufficient level of profession-oriented training Internal quality assessment includes annual monitoring of the study programmes (quality of students’ training and resourcing of educational activities),

assessment of students' satisfaction with the quality of a study programme, educational process organisation and conditions for extracurricular activities, and students' assessment of the quality of teaching for individual disciplines.

The formation of data, including the outcomes, is carried out in the AIS "Universitet". Specialised units summarise the outcomes and provide them to the university administration, heads of faculties (institutes) and chairs, and to the study programmes directors through the local information network of the university. Based on the results of the monitoring and questioning, considering the key directions of modernisation of the educational activities of SamSTU, the changes aimed at updating the content (excluding/introducing academic disciplines or their parts) and redesigning educational activities are annually introduced into the programme. Since 2016, while retaining the extent of a fundamental training, the practical component has been enhanced: the module of project activities has been introduced and expanded (team project work, elements of business education).

14. Numbers of graduates in the past five academic years and forecast for the next years

Currently, 27 people study in all master's courses. During the next five years, with the unchanged projection of admission and dropout rates of enrollment, the number of graduates will remain at the same level and will be about 50 people.

15. Employability of the graduates during recent years and expectations for the future

Up to 20 % of graduates continue for PhD programmes. The rest of the graduates are employed at the enterprises of the region or start their own business.

16. Ethical Concern

Ethical concern is reflected in several courses as sociology, psychology of social communication i.a. Drafting of a FQW requires scrupulous citation in accordance with the generally accepted ethical and legal standards. Implementation of this requirement is reflected in the review of an FQW scientific advisor based on the results of a FQW revision to define amount of a matching content, including identification of plagiarisms. In accordance with the SamSTU Regulations on the procedure for State Final Examination, a scientific advisor should submit a student's FQW for its verification in the "Antiplagiat. VUZ" system through an advisor's personal account, and then pass the information on the verification results in due time.

17. Are electronic media used for teaching, learning and/or assessment like EChem Test officially used in the Chemistry EuroLabel® programme?

EChem Tests are not used, otherwise, electronic media are in use. For online testing according to the study years, the base of test tasks and automated computer-based testing system of SamSTU are used.

Persons seen during the site visit and subjects discussed

1. Rector, Deans, Heads of Laboratories.

Subjects discussed: general situation and position of the University, brief information about AKKORK, brief information about accrediting associations of employers, brief information on educational programs

2. Meeting with staff. Number of attendees.

Subjects discussed: construction of the study programme, three profiles, social protection and student support, employment of graduates, career consulting, quality assurance.

3. Meeting with students. Bachelor and master study level.

Subjects discussed: study organisation, equipment, practical education, experience, feelings. Short examination of students on bachelor and master programme level.

4. Meeting with employed graduates.

Subjects discussed: demand in the labour market, participation in the life of the graduates' community, proposals for the study programme adjustment.

5. Meeting with employers' representatives.

Subjects discussed: quality of graduates' training, the importance of employers in the organisation of the educational process and production trainings, as well as in the development of the study programme and a competence-based model.