ASIIN Seal

Accreditation Report

Bachelor's Degree Programmes
Chemical Engineering
Geology and Geophysical Engineering
Preparation of Bachelors with New Technologies (Mechatronics)
Oil and Gas Engineering

Master's Degree Programme
Chemical Engineering

Provided by
Azerbaijan State Oil and Industry University

Version: 8 December 2023

Table of Content

A About the Accreditation Process

Name of the degree programme (in original language)	(Official) English translation of the name	Labels applied for [1]	Previous accreditation (issuing agency, validity)	Involved Technical Committees (TC)[2]
Bachelor in Chemical Engineering		ASIIN	-	01, 09
Master in Chemical Engineering		ASIIN	-	01, 09
Bachelor in Geology and Geophysical Engineering		ASIIN	-	01, 11
Bachelor in Oil & Gas Engineering		ASIIN	-	01, 11
Preparation of Bachelors with New Technologies (Mechatronics)		ASIIN	-	01, 02
Date of the contract: 19.06.2019 **Submission of the final version of the self-assessment report:** 05.02.2020 **Date of the audit (online):** 02.03. – 03.03.2022				
Peer panel: Prof. Dr.-Ing. Christoph Rappl, Technical University of Applied Sciences Deggendorf Prof. Dr. Richard Korff, University of Applied Sciences Münster Prof. Dr. Mohd Amro, Technical University Bergakademie Freiberg Prof. Dr. Leonhard Ganzer, Technical University Clausthal Dr. Gerhard Lapke, Dorsten Marcel Kaufmann, Hochschule 21, student				
Representative of the ASIIN headquarter: Rainer Arnold				

[1] ASIIN Seal for degree programmes;

[2] TC: Technical Committee for the following subject areas: TC 01 – Mechanical Engineering/Process Engineering; TC 02 – Electrical Engineering/Information Technology, TC 09 – Chemistry, Pharmacy, TC 11 – Geo Sciences

Responsible decision-making committee: Accreditation Commission	
Criteria used: European Standards and Guidelines as of 15.05.2015 ASIIN General Criteria as of 28.03.2014 Subject-Specific Criteria of Technical Committee 01 – Mechanical Engineering/Process Engineering as of 09.12.2011 Subject-Specific Criteria of Technical Committee 02 – Electrical Engineering/Information Technology as of 09.12.2011 Subject-Specific Criteria of Technical Committee 11 – Geo Sciences as of 09.12.2011	

B Characteristics of the Degree Programmes

a) Name	Final degree (original)	b) Areas of Specialization	c) Corresponding level of the EQF[3]	d) Mode of Study	e) Double / Joint Degree	f) Duration	g) Credit points/unit	h) Intake rhythm & First time of offer
Chemical Engineering	Bachelor of Science in Chemical Engineering	-	6	Full time	no	8 Semester	240 ECTS	Fall semester /2019
Chemical Engineering	Master of Science in Chemical Engineering	1. Industrial Technology of Inorganic Substances 2. Technology of Petrochemical Synthesis 3. Oil refining technology	7	Full time	no	4 Semester	120 ECTS	Fall semester /2020
Geology and Geophysical Engineering	Bachelor of Science in Geology and Geophysical Engineering		6	Full time	no	8 Semester	240 ECTS	Fall semester /2019
Oil and Gas Engineering	Bachelor of Science in Oil and Gas Engineering		6	Full time	no	8 Semester	240 ECTS	Fall semester /2016
Preparation of Bachelors with New Technologies	Bachelor of Science in Mechatronics		6	Full time	no	8 Semester	248 ECTS	Fall semester /2001

[3] EQF = The European Qualifications Framework for lifelong learning

For the Chemical Engineering programmes, Azerbaijan State Oil and Industry University (ASOIU) has presented the following objectives in the Self-Assessment Report:

"The aims of the Faculty of Chemical Technology are: bringing up experienced and knowledgeable individuals equipped with theoretical and practical information related to the discipline and, at the same time, bringing up competent individuals who are able to contribute to the developments and research studies in the field and be managers and instructors to continue to bring up qualified people who can effectively serve in this field.

The faculty aims to raise specialists and instructors for the field of chemical engineering discipline and by this way, help to meet the demands in relevant industries, job centres and higher education institutions. In addition to this, carry out research; provide help for faculty members in their research studies.

The degree program aims at equipping our students with the abilities needed to face with confidence the challenges of the domestic and foreign professional sector or of post-graduate academic programs at home or abroad. Our graduates acquire the professional skills that a rapidly shifting technological environment demands, including complex reasoning, critical thinking, and problem solving. They are able to assume leading roles in the industry. In addition, our graduates are in position to succeed in the private industrial sector, in the government sector, as well as in the academic and research environment."

For the Bachelor's degree programme Geology and Geophysical Engineering, Azerbaijan State Oil and Industry University (ASOIU) has presented the following objectives in the Self-Assessment Report:

"The aims of the Faculty of Geological Exploration are bringing up experienced and knowledgeable individuals equipped with theoretical and practical information related to the discipline and, at the same time, rear competent individuals who are able to contribute to the development and research studies in the field, become managers and instructors to continue bringing up qualified people who can effectively serve in this field.

The faculty aims to raise specialists and instructors for the field of geological engineering discipline and, thus, help to meet the demands in relevant industries, job centres/markets and higher education institutions. In addition to this, carry out research, provide help for faculty members in their research studies.

The degree program aims at equipping students with the abilities needed to face with confidence the challenges of the domestic and foreign professional sector or of post-graduate academic programs at home or abroad. Our graduates acquire professional skills that a rapidly shifting technological environment demands, including complex reasoning, critical

thinking, and problem solving. They are able to assume leading roles in the industry. In addition, our graduates are in position to succeed in the private industrial sector, in the government sector, as well as in the academic and research environment."

For the Bachelor's degree programme Oil and Gas Engineering, Azerbaijan State Oil and Industry University (ASOIU) has presented the following objectives in the Self-Assessment Report:

"The aims of the Department of Oil & Gas Engineering are; bringing up experienced and knowledgeable individuals equipped with theoretical and practical information related to the discipline, and at the same time, bring up competent individuals who are able to contribute to the developments and research studies in the field, and be managers and instructors to continue to bring up qualified people who can effectively serve in this field.

The department aims to raise specialists and instructors for the field of Oil & Gas Engineering discipline and by this way, help to meet the demands in relevant industries, job centres and higher education institutions.

The degree program aims at equipping our students with the abilities needed to face with confidence the challenges of the domestic and foreign professional sector or of post-graduate academic programs at home or abroad. Our graduates acquire the professional skills that a rapidly shifting technological environment demands, including complex reasoning, critical thinking, and problem solving. They are able to assume leading roles in the industry. In addition, our graduates are in position to succeed in the private industrial sector, in the government sector, as well as in the academic and research environment."

For the Bachelor's degree programme Mechatronics, Azerbaijan State Oil and Industry University (ASOIU) has presented the following objectives in the Self-Assessment Report:

"The objectives of the programme are:

- to provide graduate students with a high quality education in both technician and business management fields and enable the graduates to earn management and technical positions in state and non-state organizations, business and other institutions;
- to provide students the ability to effectively solve managerial and technical problems related to planning, organizing and controlling in all areas of business;

Taking into account that programme is designed to also prepare students for senior management roles, it is essential that graduates should also be able to demonstrate relevant

personal and interpersonal skills that include cognitive skills of critical thinking, analysis and synthesis as well as the capability to identify assumptions, evaluate statements in terms of evidence, to detect false logic or reasoning, to define terms adequately, and make an appropriate generalization if needed."

C Peer Report for the ASIIN Seal

1. The Degree Programme: Concept, content & implementation

Criterion 1.1 Objectives and learning outcomes of a degree programme (intended qualifications profile)

Evidence:

- Self-Assessment Reports
- Study plans of the degree programmes
- Module descriptions
- Webpage ASOIU: http://asoiu.edu.az/en
- Webpage Faculty of Geological Exploration: http://fge.asoiu.edu.az/en/Bachelor/Speciality/23
- Webpage Ba Chemical Engineering: http://fct.asoiu.edu.az/en/Bachelor/Speciality/23
- Webpage Ma Chemical Engineering: http://fct.asoiu.edu.az/en/Master/Speciality/19
- Webpage Faculty of Oil and Gas Production: http://fogp.asoiu.edu.az/en/Department/6
- Webpage Faculty of Information Technologies and Management: http://www.mba.edu.az/education/mba/Detail/5
- Discussions during the audit

Preliminary assessment and analysis of the peers:
The auditors base their assessment of the learning outcomes as provided on the websites and in the Self-Assessment Reports of the five degree programmes under review.

The auditors refer to the Subject-Specific Criteria (SSC) of the Technical Committee Mechanical Engineering/Process Engineering as a basis for judging whether the intended learning outcomes of the Bachelor's and Master' degree programme Chemical Engineering as defined by ASOIU correspond with the competences as outlined by the SSC. They come to the following conclusions:

The Bachelor's degree programme Chemical Engineering is designed to train students who can plan, develop, implement, assess and operate chemical processes. By teaching basic knowledge of chemistry, physics, and mathematics, a basis is laid for the following chemical engineering specific content. The subject-specific training should enable graduates to design chemical engineering systems and processes, analyse and interpret data using statistical methods as well as to plan, optimise, improve and efficiently operate overall processes.

Graduates of the Bachelor's degree programme Chemical Engineering should be able to design systems, components, units and processes that meet the requirements of the industry, taking into account natural limitations such as economics, ecology, security and social aspects. The programme deals with industrial applications of chemical engineering, with a clear focus on the local oil and gas industry.

There is a wide range of possible applications in chemical engineering. Graduates should be qualified to take up further Master's studies on the one hand, and to start a career in industry on the other hand. In addition, they can find jobs in maintenance and plant construction, as a product or sales engineers in a marketing department or as experts in documentation, testing and occupational safety.

Graduates of the Master's degree programme Chemical Engineering qualify for employment at a university and/or for continuation of academic training within the framework of a PhD programme. In addition, Master's graduates receive more responsible and better paid positions in industry or public administration than Bachelor's graduates.

The objectives of the Bachelor's as well as of the Master degree programme Chemical Engineering as described in the respective module handbook are well suited to train graduates with the technical, scientific, legal and business skills of a professional chemical engineer at Bachelor and Master level with a focus on oil and gas processing. Great emphasis is placed on the teaching of in-depth English skills. The training of professional and managerial skills is based on a solid foundation as described in the various modules of the module handbook.

Both programmes provide graduates with fundamental theoretical and practical scientific engineering knowledge and skills that ensure a variety of career opportunities, including working as a chemical engineer for refineries and the primary industry. The content focuses on technology of inorganic substances, petroleum refining, and petrochemical synthesis, so that graduates can gain extensive experience in areas that are essential for petrochemistry and refinery work. Through electives, they can also acquire skills in the industrial technology of inorganic materials and refractory materials. In addition, students can acquire management skills, e.g. in energy management and law.

Overall, the peers are of the opinion that the qualification goals of Bachelor's degree programme Chemical Engineering are well defined and meaningfully formulated and that both professional and interdisciplinary aspects are sufficiently represented. The career perspectives mentioned are judged realistic and appropriate. In principle, the listed qualification goals can be assigned to level 6 (Bachelor's degree programmes) of the European Qualifications Framework (EQF/EQF).

At the same time, the peers emphasise that the overall intended learning outcomes of the Master's programme Chemical Engineering are worded much too generic and they do not make sufficiently clear which subject-specific competences graduates should acquire. The Self-Assessment Report just lists general competences such as "Ability to summarize and formulate complex problems regarding with a newest or emerging branch of their discipline" or "Ability to apply innovative methods to problem-solving based on key principles and to evolve new scientific methods". This is all fine and Master's graduate should certainly acquire these skills but these objectives are not programme specific and could be formulated in this way for any scientific Master's programme. However, the learning outcomes as mentioned in the module description seem realistic and can be assigned to level 7 (Master's degree programmes) of the European Qualifications Framework (EQF/EQF).

The peers refer to the Subject-Specific Criteria (SSC) of the Technical Committee Mechanical Engineering/Process Engineering as a basis for judging whether the intended learning outcomes of the Bachelor's degree programme Oil and Gas Engineering, as defined by ASOIU, correspond with the competences as outlined by the SSC. They come to the following conclusions:

The aim of the Bachelor's degree programme Oil and Gas Engineering is to equip students with the necessary skills, to face the challenges of the domestic professional world or postgraduate study programmes at home and abroad with confidence. Graduates acquire the professional skills required by a rapidly changing technological environment, including complex reasoning, critical thinking and problem solving. They are able to take on leadership roles in the domestic and international industry. In addition, students will be able to acquire management skills, e.g. in energy economics and law.

The degree programme is designed to provide graduates with fundamental theoretical and practical scientific engineering knowledge and skills that ensure a variety of career opportunities, including working in relevant areas as a petroleum engineer.

The learning objectives as described in the module handbook are very well suited to train graduates with the technical, engineering and scientific, legal and business skills of a professional engineer at Bachelor level. Great emphasis is placed on the teaching of in-depth

English skills. The training of technical and managerial skills is based on a solid foundation as described in the various modules of the module handbook.

At the same time, the peers emphasise that the overall intended learning outcomes of the Bachelor's programme Oil and Gas Engineering are worded much too generic and they do not make sufficiently clear which subject-specific competences graduates should acquire. The Self-Assessment Report just lists general competences such as "Planning and conducting experiments, and analysis and interpretation of data" or "Ability to use the techniques, skills and modern engineering tools necessary for engineering practice". This is all fine and students should certainly acquire these skills but these objectives are not programme specific and could be formulated in this way for any scientific Bachelor's programme. However, the learning outcomes as mentioned in the module description seem realistic and can be assigned to level 6 (Bachelor's degree programmes) of the European Qualifications Framework (EQF/EQF).

The peers refer to the Subject-Specific Criteria (SSC) of the Technical Committee Geosciences as a basis for judging whether the intended learning outcomes of the Bachelor's degree programme Geology and Geophysical Engineering, as defined by ASOIU, correspond with the competences as outlined by the SSC. They come to the following conclusions:

The purpose of the Bachelor's degree programme Geology and Geophysical Engineering is to produce graduates who have strong fundamental knowledge of geosciences so that they can adapt to the requirements of the job market and are able to continue their academic education. Graduates should acquire the necessary geological engineering knowledge and able to solve geological-related problems.

The degree programme is designed to provide graduates with fundamental theoretical and practical scientific engineering knowledge and skills that ensure a variety of career opportunities, including working in mineral exploration.

As mentioned before, the peers point out that the overall intended learning outcomes of the Bachelor's programme Geology and Geophysical Engineering are worded much too generic and they do not make sufficiently clear which subject-specific competences graduates should acquire. The Self-Assessment Report just lists general competences, which are identical to those for the Oil and Gas Engineering programme. However, the learning outcomes as mentioned in the module description seem realistic and can be assigned to level 6 (Bachelor's degree programmes) of the European Qualifications Framework (EQF/EQF).

The peers refer to the Subject-Specific Criteria (SSC) of the Technical Committee Electrical Engineering/Information Technology as a basis for judging whether the intended learning

outcomes of the Bachelor's degree programme Mechatronics, as defined by ASOIU, correspond with the competences as outlined by the SSC. They come to the following conclusions:

The aim of the Bachelor's degree programme Mechatronics is to offer training in both the technical and business areas. Graduates should be able to fill management and technical positions in governmental and non-governmental organisations, companies and other institutions. Students are taught the ability to solve management and technical problems related to planning, organisation and control in all areas of the economy. Great emphasis is placed on the teaching of in-depth English skills. The training of technical and managerial skills is based on a solid foundation as described in the various modules of the module handbook.

However, the peers need to point again that the overall learning outcomes of the Bachelor's degree programme Mechatronics are worded too generic and should emphasise the subject-specific objectives more strongly. The objectives, as listed in the Self-Assessment Report, such as "be able to impart methodical and social key qualifications such as communication and teamwork, presentation and moderation skills and the skills to use modern information technologies" and "acquire a first professional degree with the level of knowledge which enable to work as a mechanical engineer" do not realistically describe the intended qualification profile of the graduates. In addition, the described objectives mention several times "mechanical engineer" or "industrial engineering", for this reason, the peers emphasise that these goals are not adequate for a mechatronics programme and need to be revised.

Finally, graduates of all programmes should have adequate competencies in oral and written communication skills, be adaptive to the development of sciences, and have adequate English proficiency as well as a social and academic attitude.

In order to appropriately differentiate the qualification profile achieved with the respective Bachelor's or Master's degree programme, references should also be made to the different depth and breadth of the relevant skills and competences that should be acquired. The intended competences of the graduates should also correlate to activity profiles of the desired professional environment. In general, a more precise description of the programme-specific learning objectives need to be designed separately for each degree programme. In addition, there should be a difference in the intended learning outcomes for the three specialisations in the Master's degree programme Chemical Engineering.

For this reason, it seems necessary for all study programmes to specify the technical and professional competences aimed for and to make them plausible on the basis of the learning objectives of the courses.

Furthermore, according to the available information, it cannot be determined whether the overall learning objectives are bindingly anchored and, if so, where they are documented (e.g. homepage of the degree programmes). Thus, it needs to be verified in the further procedure that the overall learning outcomes in the revised version are made accessible to the relevant stakeholders - especially teachers and students - and are anchored in such a way that they can refer to them (e.g. in the context of internal quality assurance).

Overall, and taking into account the oral explanations given during the audit, the qualification goals convey a plausible idea of the competence profile that graduates should have acquired after completing the programme. The career prospects presented are considered realistic by the peers.

Based on the Self-Assessment Reports and the discussions during the online audit, the peers see that the graduates of all programmes under review acquire the subject-specific competences as defined in the respective SSC.

Criterion 1.2 Name of the degree programme

Evidence:

- Self-Assessment Reports

Preliminary assessment and analysis of the peers:
The auditors confirm that the English names of all degree programmes under review correspond with the intended aims and learning outcomes.

Criterion 1.3 Curriculum

Evidence:

- Self-Assessment Reports
- Study plans of the degree programmes
- Module descriptions
- Webpage ASOIU: http://asoiu.edu.az/en
- Webpage Faculty of Geological Exploration: http://fge.asoiu.edu.az/en/Bachelor/Speciality/23
- Webpage Ba Chemical Engineering: http://fct.asoiu.edu.az/en/Bachelor/Speciality/23

- Webpage Ma Chemical Engineering: http://fct.asoiu.edu.az/en/Master/Speciality/19
- Webpage Faculty of Oil and Gas Production: http://fogp.asoiu.edu.az/en/Department/6
- Webpage Faculty of Information Technologies and Management: http://www.mba.edu.az/education/mba/Detail/5
- Discussions during the audit

Preliminary assessment and analysis of the peers:

The academic year at ASOIU is divided into two semesters: Fall semester lasts from September 15 to February 15; spring semester lasts from February 15 to July 15. The courses run for 15 weeks in each semester. In addition, there is a short summer semester term (two months) during which students that have missed or failed some classes can repeat them.

The degree programmes under review are aimed at Azerbaijan and foreign students, and teaching is given in English language. Students admitted to the programmes come from two sources: local applicants, who are citizens of the Republic of Azerbaijan and international applicants.

The Bachelor's degree programme under review are designed for four years and at least 240 ECTS points, with the exception of the mechatronics programme, which encompasses 248 ECTS points. The Master's degree programme Chemical Engineering is designed for two years and 120 ECTS points are awarded.

The study plans of all degree programmes under review have a balanced ratio between compulsory and profile courses. Besides teaching the basics in natural sciences, mathematics, informatics, economics, and engineering a strong emphasis is placed on language courses (mainly in English). However, the peers notice during the audit, that the students' English proficiency should be further improved, especially to active English speaking skills. For this reason, it would be useful do introduce more presentations in English, spend more time in the language laboratories, and may be introduce a journal club where students present and discuss current publications in the respective science. It is very important that the English language skills of the students as well as the teaching staff are developed to a level high enough to participate in the latest scientific developments and research trends on an international level.

The peers point out, that all degree programmes under review have a strong focus on theoretical content as opposed to practical hands-on activities in laboratories. ASOIU should consider increasing the practical laboratory activities. Graduates should spend more time in the laboratories; they need not only understand the theoretical concepts, but also need to be able to apply them in practical experiments.

A Bachelor's thesis in the 4th year of study is part of the final degree. The topics are usually aligned with the needs of the local oil and gas industry and need to be approved by the academic advisors. Under the regular guidance of university teachers (weekly progress meetings), graduates conduct their final project. An oral defence completes the graduation.

The Master's thesis extends over 3 semesters, beginning with literature research and then the processing of the topic agreed with the rectorate by a university lecturer on a permanent basis through consultation and advice. In the last semester, the project is completed, the written report is concluded and the thesis is defended through a presentation and discussion.

A 15-week internship in industry takes place in the 8th semester of the Bachelor's degree programmes. It encompasses 21 ECTS points (18 ECTS points in the mechatronics programme) and is designed to enable students to acquire experience in the working life from a from an employee's point of view and to learn what is required of engineers. Furthermore, these internships should help to establish an adequate relation to professional practice and prepare students for taking up a job in appropriate professional fields by developing contact with potential employers. However, the internship (practical training) is usually conducted during the summer time and not necessarily in the last semester of the Bachelor's programme, students sometimes are even paid for the internship. The Master's degree programme Chemical Engineering does not include an internship, students concentrate on their Master's thesis and the related research activities in their last semester of studies.

ASOIU's most important partner from the industry and one of the main employers of the graduates is the State Oil Company of Azerbaijan Republic (SOCAR). The graduates' job perspectives are very good; according to official statistics approximately 80 % of the Bachelor's graduates find a suitable job within the first year after graduation, the quota is even higher (around 95 %) for Master's graduates.

The peers gain the impression that the graduates of all degree programmes under review are well prepared for entering the local labour market and can easily find adequate jobs in Azerbaijan.

Criterion 1.4 Admission requirements

Evidence:

- Self-Assessment Reports
- Webpage ASOIU: http://asoiu.edu.az/en

- Webpage Faculty of Geological Exploration: http://fge.asoiu.edu.az/en/Bachelor/Speciality/23
- Webpage Ba Chemical Engineering: http://fct.asoiu.edu.az/en/Bachelor/Speciality/23
- Webpage Ma Chemical Engineering: http://fct.asoiu.edu.az/en/Master/Speciality/19
- Webpage Faculty of Oil and Gas Production: http://fogp.asoiu.edu.az/en/Department/6
- Webpage Faculty of Information Technologies and Management: http://www.mba.edu.az/education/mba/Detail/5
- Discussions during the audit

Preliminary assessment and analysis of the peers:
The admission procedure for Bachelor's students is based on the Unified National Exams: Azerbaijan citizens holding appropriate documents from a high school are required to pass the entrance examination, which is centrally organised by the State Students Admission Commission (now State Examination Center, SSAC). The entrance examination is carried out in two stages. In the first stage, applicants take entrance exams in Azerbaijani or Russian language and in foreign languages and mathematics. The maximum number of points that applicants can earn in the first stage of the entrance exam is 300 points, with 100 points for each subject. The second stage of entrance exams to higher education institutions depends on the concrete study programmes that the applicants want to join. The maximum score that applicants can get in the second stage of the entrance exam is 400 points. Based on the total score, students are admitted to the different programmes at universities in Azerbaijan.

The entrance exam for Master’s degree is carried out in two stages. At the first stage, students need to pass an exam on logic thinking, foreign languages, and computer science. Students who satisfy the requirements will have the opportunity to participate in the second round. In the second round, students are selected on the basis of average grades during the period of their Bachelor’s studies. The second stage of the admission procedure aims at subject-specific knowledge and in this respect corresponds to qualified subject-specific admission regulations, whose quality-assuring function can hardly be doubted. In the combination of the two procedural stages, the selection procedure thus has in principle the potential to provide a favourable study success prognosis for the students ultimately admitted to the Master's programme.

For international applicants, admission is managed directly by the Azerbaijan State Oil and Industry University International Cooperation Office and International Students Dean Office. Enrollees are admitted without passing the centralized examination of Azerbaijan. The applicants apply directly to the University electronically and are registered for the respective programme.

During the audit, the peers discuss with the programme coordinators, why local students do not have to submit a certificate of English proficiency for admittance to the respective programmes. They learn that English skills are part of the national entrance exams and therefore no additional certificate is required. However, the peers see that the students' English proficiency should be further improved and for this reason they suggest that an English certificate, e.g. TOEFL, iBT, IELTS or an equivalent test, should also be required for the admission of Azerbaijani students, as the national admission test is not specifically designed for degree programmes that are taught in English.

The yearly intake for all four Bachelor's programmes under review is 25 students and for the Master's programme 10 students. The yearly tuition fee for the Bachelor's programmes is 2500 USD for international and 1800 AZN for local students. Tuition fee for the Master's programme is 3000 USD for international applicants and 2000 AZN (1055 €) for local ones.

In summary, the auditors find the terms of admission to be binding and transparent. They confirm that the admission requirements support the students in achieving the intended learning outcomes.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 1:

The peers confirm that ASOIU submits updated and newly worded objectives and learning outcomes of the Bachelor's degree programmes Mechatronics, Oil and Gas Engineering, and Geology and Geophysical Engineering. The overall competences aimed for in the degree programme are now specified in a programme-specific manner. The peers expect ASOIU to make the revised versions of the overall intended learning outcomes accessible to all stakeholders and to anchor them in such a way that the stakeholders can refer to them.

With respect to the Master's degree programme Chemical Engineering, the peers cannot confirm that the intended learning outcomes have been updated. They are worded much too generic and they do not make sufficiently clear which subject-specific competences graduates should acquire. In addition, there should be a difference in the intended learning outcomes for the three specialisations and the overall intended learning outcomes should be accessible to all stakeholders.

The peers thank ASOIU for clarifying that the internships in the Mechatronics programme are conducted in the last semester of the programme and not during the summertime. Students do not have to pay for the internship. With respect to the Master' degree programme Chemical Engineering, ASOIU explains that the curriculum includes a research internship, which is conducted from February until April.

The peers consider criterion 1 to be mostly fulfilled.

2. The degree programme: structures, methods and implementation

Criterion 2.1 Structure and modules

Evidence:

- Self-Assessment Reports
- Study plans of the degree programmes
- Academic Guidelines
- Module descriptions
- Webpage ASOIU: http://asoiu.edu.az/en
- Webpage Faculty of Geological Exploration: http://fge.asoiu.edu.az/en/Bachelor/Speciality/23
- Webpage Ba Chemical Engineering: http://fct.asoiu.edu.az/en/Bachelor/Speciality/23
- Webpage Ma Chemical Engineering: http://fct.asoiu.edu.az/en/Master/Speciality/19
- Webpage Faculty of Oil and Gas Production: http://fogp.asoiu.edu.az/en/Department/6
- Webpage Faculty of Information Technologies and Management: http://www.mba.edu.az/education/mba/Detail/5
- Discussions during the audit

Preliminary assessment and analysis of the peers:

The curriculum of all Bachelor's degree programmes under review are designed for eight semesters. Elective courses can be chosen by the students in accordance with their areas of interest and after consultation with their academic advisor. The courses in the first two

semesters of the Bachelor's programmes convey basic knowledge of natural sciences, mathematics and languages. Courses on the different sciences are offered from the third to the sixth semester. The Bachelor's programmes include General studies, English Composition & Social Science studies, Obligatory studies, Elective studies, Bachelor's Thesis, and Practical Training Internship. In the general studies, students should acquire mathematical and scientific skills that are required in the compulsory and elective subject studies. The general studies include mathematics, physics, chemistry, and computer science modules. English Composition and Social Science studies include English language and communication modules, social modules and economic modules. In the compulsory and elective studies, the student deepens his/her knowledge within the wide-ranged field of their respective engineering programme. During the seventh and eighth semester, students must complete the internship and the Bachelor's thesis.

The internship and the Bachelor's thesis" are intended to provide students with opportunities to apply their theoretical knowledge in a professional way, to learn about the requirements of the job market, and to show their proficiency with scientific work.

The Master's degree programme Chemical Engineering is designed for four semesters and offers three specialisations: "Industrial technology of inorganic substances", "Technology of petrochemical synthesis", and "Oil refining technology". After attending some general classes at the beginning of the semester, Master's students concentrate on their specialization in the second and third semester. The last semester is dedicated to research activities and the Master's thesis.

The degree programmes are consistently modularised, the modules are clearly structured, and each module is a coherent and consistent learning package. The size and duration of the modules allow students to combine them flexibly and to receive credits. Module descriptions are available to relevant stakeholders. They describe what knowledge, skills and competences are expected of students in each module. The programme learning outcomes are reflected in the content of the individual modules.

The distribution of the modules per semester and their logical sequence are convincing. In a "Module Learning outcome Matrix", the learning outcomes are assigned to the respective modules in three levels (low, medium, high).

While looking at the provided study plans and the module descriptions, the peers notice that sometimes the same topics are discussed in different courses. In addition, some important subjects seem to be missing. Teachers should better coordinate what topics are taught in what course and how the courses build on each other.

For example, analytical chemistry is missing as an own module in the Bachelor's programmes. General Chemistry II includes some aspects of analytical chemistry but it would

be useful to offer a separate course on analytical chemistry, because this subject is important for all engineers. The same problem concerns fluid dynamics and thermodynamics, which are essential for graduates who will work in the oil and gas industry. In addition, artificial lift systems should be specified in the oil and gas programme. On the other hand, the amount of compulsory language courses could be reduced, especially in the mechatronics programme, where language courses in English, German, and Azerbaijani have to be taken. Another example is the fact that Laplace-Transformation is taught in several courses of the mechatronics programme, there are similar examples in other programmes. In general the peers see that the lecturers need to better coordinate the content of the different course and make sure that there are not so many overlaps and that the courses build upon each other.

In general, the sequence and content of the individual modules could be improved. There is a lack of content for chemical engineering in the Bachelor's degree programme (e.g. no mechanical engineering at all) Further more, there are hardly any process engineering, fluid dynamics, no pumps and compressors - although this is particularly important in the refinery sector). All modules are more or less squeezed into a grid in which the time frame and the allocation of credits are subject to standardisation, although the importance of the modules for chemical engineering is different.

In addition, the peers point out that the scope of mathematics and basic electrical engineering in the mechatronics programme could be increased. In general, it is considered important to cover all fundamentals in mathematics, natural sciences, and informatics more thoroughly before presenting advanced subjects. The scientific and engineering foundations should be laid first in all Bachelor's degree programmes, before special topics are introduced. For instance course “Electrical Engineering 1” (Ba Mechatronics): This course could be easily filled with content regarding linear DC circuits. The content presented in the course from week 9 till week 15 are part of electronics education and should be discussed in a later semester.

Moreover, the peers emphasise that students should not only learn facts by heart, but also should learn to think in a problem-oriented way and be able to transfer knowledge and methods to other areas.

ASOIU’s partners are satisfied with the qualification profile of the graduates of the programmes under review and prefer to hire them. The employers assess the skills and knowledge of the graduates of ASOIU to be better suited for the job market in comparison to those from other similar programmes in Azerbaijan.

Another positive aspect of the programmes is the fact that some bachelor's graduates are accepted by renowned European universities as Master's students (e.g. Technical University of Dortmund, University of Strasbourg, and University of Stavanger).

Even if a more precise description of the programme-specific learning objectives is required (see criterion 1.1), the objective matrices presented make it sufficiently clear with what module what competences should be acquired. Based on the provided information in the Self-Assessment Reports it is possible to identify in principle in which modules competences are acquired in the areas of knowledge and understanding, engineering methodology, engineering development, (engineering) investigation and evaluation, engineering practice and product development as well as general competences. Despite the weaknesses mentioned in the overall learning objectives, these assignments appear plausible overall.

International Mobility

ASOIU participates in a number of international projects for improving education quality and applying innovations in education. The bachelor degree in Environmental protection was set up within the frames of the European Union's TEMPUS program.

Since 2015, the ASOIU has been taking part in the Erasmus+ network. Within Erasmus+ network, the University participates in various projects for the improvement of the quality of higher education.

Student mobility is realized in several directions. With the Erasmus+ International Credit Mobility, the ASOIU students gain the opportunity to study for a short period in leading universities of Europe. Furthermore, the "Mevlana Programme" offers opportunities for academic mobility with Turkish universities.

According to the opinion of the peer group, the academic mobility of the students should be further promoted. The number of Bachelor's students who participate in international exchange programmes is still low despite students' high interest. In recent years, there have been some outgoing students to Germany, France, Italy and Norway, but only few students go abroad during their studies. However, ASOIU has established some successful co-operations already; for example, the partnership programme "Bachelor with New Technologies" (mechatronics) was established in 2001 between the University of Siegen and the ASOIU. The main content of the Azerbaijani educational standards and curricula are aligned with the curriculum of the University of Siegen, so that is easy for students to attend courses at the other university.

The number of foreign students between 2017 and 2010 was over 110, of which most were enrolled in the Bachelor's degree programme Oil and Gas Engineering. The students come mainly from China, Turkmenistan and Iran.

The students confirm during the discussion with the peers that some opportunities for international academic mobility exist. However, they also point out that they wish for more places and better endowed scholarships for long and short-term stays abroad. The number of available places in the exchange programmes is still limited and there are restrictions due to a lack of sufficient financial support. The peers understand these problems; however, they recommend increasing the effort to further internationalising ASOIU by establishing more international co-operations and exchange programmes and by offering more and better-endowed scholarships.

In addition, students would like to improve their English proficiency in order to increase their job perspectives and their chances for receiving a scholarship for continuing their academic education at an international university.

Azerbaijan has entered the Bologna process by the adoption of the Bologna Declaration in 2005 and the adoption of the Lisbon Recognition Convention in 2006. The objective of these actions was the harmonization of Azerbaijan education system with the education systems of EU countries. This gives students the opportunity to study abroad while their acquired credits are recognised at ASOIU.

The peers see that ASOIU has a clear vision of further internationalising the university and the degree programmes. ASOIU has established a double degree programme with the University of Strasbourg in several areas e.g. oil and gas engineering and geology engineering. In addition, ASOIU is inviting guest lecturers and co-operates with international agencies for promoting academic mobility e.g. DAAD. Furthermore, ASOIU conducts several summer schools and invites international students, not only from neighbouring countries but also from Europe to take part; the resonance is very good and the peers support these offers.

However, these projects are currently handicapped by the Covid-pandemic and the imposed travel restrictions, but hopefully all programmes can be continued successfully after the end of the pandemic.

In summary, the peers appreciate the efforts to foster international mobility and support ASOIU to further pursuing this path.

Criterion 2.2 Work load and credits

Evidence:

- Self-Assessment Reports
- Study plans of the degree programmes
- Module descriptions
- Academic Guidelines
- Discussions during the audit

Preliminary assessment and analysis of the peers:
The peers confirm that all modules extend over one semester and are credited. One ECTS point is awarded for 30 hours of students' total workload. The students' workload is calculated by the lecturers and programme managers and verified through consultations (questionnaires) with the students.

The specific workload for each module in described in detail (time spent in lectures, time for self studies etc.) in the respective module description. Formally, the workload calculation is fine. Nevertheless, the peers consider the ratio of contact time and time for self-studies somewhat unbalanced. Often, 30 hours of contact time are associated with 120 hours of self-study and exam preparation, which is rather extensive. In addition, there do not seem to be any joint exercises with lecturers or tutors.

During the audit, the students basically confirm that their workload is adequate and that it is possible to finish the degree programme within the expected four years (Bachelor) or two years (Master).

The dropout rates in all degree programmes under review are rather low, almost all students stay in the programmes, only very few students decide to leave ASOIU.

Based on the study plans, the statistical data, and the comments of the students, the peers conclude that there is no structural pressure on the quality of teaching and the level of education due to the workload.

Criterion 2.3 Teaching methodology

Evidence:

- Self-Assessment Reports
- Study plans of the degree programmes
- Module descriptions
- Discussions during the audit

Preliminary assessment and analysis of the peers:

Various teaching and learning methods (including lectures, computer training and classroom and lab exercises, individual and group assignments, seminars and projects, etc.) have been implemented. Structured activities include tutorials, homework, assignments (reading or problem exercises) and practical activities. Group project assignments are given in some courses to develop students' skills in teamwork, communication, and leadership.

The most common method of learning is class session, with some courses having integrated laboratory practices. Lecturers generally prepare presentations to aid the teaching process. With individual or group assignments, such as discussions, presentations, or written tasks, students are expected to improve their academic as well as their soft skills. Laboratory work covers laboratory exercises and reports, In addition, practical activities should enable students to be acquainted with academic research methods.

Teaching is traditionally done via lectures supported by PowerPoint presentations. The teaching materials can be viewed and downloaded via ASOIU's digital platform. The lessons are mainly held in the "classical" way in the form of PowerPoint-supported lectures. The students can use the university's computer laboratories for their practical work to improve their practical skills. Students use computers and robots in the lab under the supervision of a teaching assistant or instructor.

Although there are no e-learning or blended-learning elements in use, there is a digital learning platform "Unibook" that is used by teachers and students for presenting documents and interacting with each other. Microsoft teams was used for digital teaching during the Covid-pandemic, experiments were shown and explained online.

Generally, the students are satisfied with the existing teaching methods.

In summary, the peer group considers the teaching methods and instruments to be suitable to support the students in achieving the intended learning outcomes. In addition, they confirm that the study concept of all programmes under review comprises a variety of teaching and learning forms as well as practical parts that are adapted to the respective subject culture and study format.

Criterion 2.4 Support and assistance

Evidence:

- Self-Assessment Reports
- Academic Handbooks
- Discussions during the audit

Preliminary assessment and analysis of the peers:
ASOIU offers a comprehensive advisory system for all undergraduate students. At the start of the first semester, every student is assigned to an academic advisor. Each academic advisor is a member of the academic staff and is responsible for a group of students from his classes. He/she is a student's first port of call for advice or support on academic or personal matters.

The role of the academic advisor is to help the students with the process of orientation during the first semesters, the introduction to academic life and the university's community, and to respond promptly to any questions. They also offer general academic advice, make suggestions regarding relevant careers and skills development and help if there are problems with other teachers. The students confirm during the discussion with the peers that they all have an academic advisor who they can approach if guidance is needed.

In general, students stress that the teachers are open minded, communicate well with them, take their opinions and suggestions into account, and changes are implemented if necessary.

Students who prepare their final project have one or more supervisors, who are selected based on the topic of the final project. The role of the final project supervisor is to guide students in accomplishing their final project, e.g. to finish their research and complete the final project report.

Students can receive assistance from the Graduate Career Center of ASOIU about career guidance and consultancy, career development training, soft skill training, and job opportunities. The Centre provides information on training and job seeking to help students develop career plans and workplace understanding. In addition, the Center support students to find suitable jobs by organising a job fair in May and December of every year and by forwarding job vacancies to the students. Moreover, during the internship students are introduced to professional life and acquire additional skills that help them finding an adequate position after graduation. In summary, this results in good job perspectives for the graduates of all degree programmes.

Finally, there are several student organizations at ASOIU for example the "Union of Student Associations", which organizes meetings, round tables, training courses, discussion clubs, and other activities such as arts and sports.

As the information provided in the Self-Assessment Reports and the audit interviews suggest, the intensive supervision and mentoring of students seem to generate a learning environment that effectively promotes the achievement of intended learning objectives and the general progress of studies.

The peers notice that there are enough resources available to provide individual assistance, advice and support for all students. The support system helps the students to achieve the intended learning outcomes and to complete their studies successfully and without delay. The students are well informed about the services available to them. In summary, the comprehensive tutorial and support system for students is one of the strong points of the degree programmes.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 2:

The peers appreciate that ASOIU is planning to add a separate course in analytical chemistry to the curriculum of the Bachelor's degree programme Chemical Engineering and will put a stronger focus on theoretical mechanics and materials science.

The peers consider criterion 2 to be mostly fulfilled.

3. Exams: System, concept and organisation

Criterion 3 Exams: System, concept and organisation

Evidence:

- Self-Assessment Reports
- Module descriptions
- Guidelines for Organising an Examination
- Regulation of Thesis Assessment
- Academic Guidelines

Preliminary assessment and analysis of the peers:

According to the Self-Assessment Reports, the students' academic performance is evaluated based on their performance in the mid-term and final exams. In addition, in several courses students have to do presentations and 75 % of attendance in class is required. The details, which assessment forms are used in which courses and how they contribute to the final grade, are described in the respective module descriptions. Midterm exams are held during the 7th or 8th week of the semester and final exams are held after the 15th week.

The most common type of evaluation used are written examinations; however, quizzes, laboratory work, assignments (small projects, reports, etc.), presentations, and seminars may contribute to the final grade. Written examinations, either closed-book or open-book, typically include short answers, problem-solving or case-based questions, and calculation problems.

Some lecturers also give multiple choice or true-false questions in examinations or quizzes. The grade from laboratory work usually consists of laboratory skills, discussions, reports, and oral exams. Students can access their results of laboratory works and midterm exams, presentations scores, timetable and final exam scores mid-term and final exams via ASOIU's digital platform "Unibook".

In their final year, all Bachelor's students must complete a graduation project. Students are expected to carry out literature search and complete the theoretical parts of their project before starting with the practical work. Students can select the project from the list offered by the department. Many final theses are conducted in co-operation with companies and the topics are often chosen according to the needs and requirements of the industrial sector, mainly the oil and gas industry. At the end of the graduation project, students write their thesis, which consists of introduction, literature review, research methods, calculations, conclusion and list of references. Likewise, Master' students have to conduct an advanced research project as part of their graduation requirements. The assessment of the graduation project consists of the preparation of a thesis and an oral presentation in front of an assessment panel. Students are expected to prepare slides and present their projects orally. The presentation time is 10 minutes and at the end of the presentation 5 minutes are allocated for questions. The grade depends on the style of the presentation, confidence of the student, the ability to answer the questions, and the content of the project.

If students fail an exam, they are allowed to take 2-3 make-up exams. The exact date and time of the make-up exams are announced by the Dean's office and usually take place at the end of the examination period. The absence of students in the midterms and finals due to illness or otherwise is remediable by taking the exam later. Students, who cannot attend practical courses for acceptable reasons, can repeat the practicum later; the lecturers are responsible for the arrangement. Students can also ask for explanations and can appeal their grades. The details and regulations related to the exams are described in the Academic Guidelines.

During the audit, the peers notice that most of the exams verify the students' knowledge and if they can repeat the learned content. However, the peers are convinced that it would be useful to put more emphasis on questions related to transfer skills and critical thinking. Students should not only learn facts by heart but also learn to think in a problem-oriented

way and be able to transfer knowledge and methods to other areas. The mid-term and final exams should not only verify if the students have learned the content by heart but if they understand the context and the reasoning behind it and are able to apply the acquired knowledge to new areas. It is also important that competence-oriented forms of exam are used, not only written exams.

The students confirm during the audit that the exam load is appropriate and they are well informed about the examination schedule, the examination form, and the rules for grading.

The peers receive some sample of examination papers and final theses in the course of the audit, but they would like to have sample exams from all degree programmes. For this reason, they ask ASOIU to provide additional samples of examination papers.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 3:

The peers support the plan to put more emphasis on critical thinking, transfer skills, and that the exam forms will be problem oriented and competence based.

The peers consider criterion 3 to be mostly fulfilled.

4. Resources

Criterion 4.1 Staff

Evidence:

- Self-Assessment Reports
- Staff Handbooks
- Study plans
- Module descriptions
- Discussions during the audit

Preliminary assessment and analysis of the peers:

At ASOIU, the staff members have different academic positions. There are professors, associate professors, and lecturers. The academic position of each staff member is based on research activities, publications, academic education, supervision of students, and other supporting activities.

According to the information provided by ASOIU, there are 98 full-time teachers in the Faculty of Chemical Technology, among them 16 full professors and 64 associate professors. Almost all of the teachers hold a PhD degree. In the Department of "Oil and Gas Engineering", there are currently 26 full time teachers. The teaching staff in the Faculty of Geological Exploration encompasses 104 persons, including 4 full professors and 35 associate professors. The faculty in the mechatronics programme encompasses 26 full time teachers. In addition, there are administrative staff, technicians and some visiting lecturers from other universities e.g. the University of Siegen in the mechatronics programme.

From the provided staff handbook, the peers derive that most of the teachers have received their academic education in Azerbaijan. In order to further promoting the university's internationalisation, it would be a good idea to send promising graduates abroad for attending PhD programmes at renowned international universities and then subsequently hiring them as lecturers.

ASOIU has a policy for promoting the academic staff based on their research activities and scientific publications. There is a scoring system in place, where the teachers get a certain amount of points based on the number and type of publications. In addition, the academic contributions e.g. attending conferences are also taken into account. Teachers also receive financial benefits according to their academic score. This scoring system is quite unusual in comparison to other European countries, but the teaching staff is satisfied with it and expresses no critique.

All fulltime members of the teaching staff are obliged to be involved in teaching/advising, research, and administrative services. However, the workload can be distributed differently between the three areas from teacher to teacher.

During the audit, the peers learn that the teaching load is 500 hours for the academic year (30 weeks), this results in approximately 16 hours of teaching per week. The peers point out that this teaching load is quite high and leaves only limited room for conducting research activities. The peers emphasise that research activities are also important for offering current topics for the Bachelor's and especially the Master's theses. Especially Master's students need to get involved in research during theirs studies and results from research activities should be discussed in the lectures. Teaching cannot stand alone but needs to be related to research. There should be a stronger focus on research activities and teachers should be encouraged to establish international cooperations and research projects.

In summary, the peers confirm that the composition, scientific orientation and qualification of the teaching staff are suitable for successfully implementing and sustaining the degree programmes. However, teaching is dominant and the teachers at ASOIU have hardly any scientific publications in renowned international journals.

Criterion 4.2 Staff development

Evidence:

- Self-Assessment Reports
- Staff handbook
- Discussions during the audit

Preliminary assessment and analysis of the peers:
ASOIU encourages training of its academic and technical staff for improving the didactic abilities and teaching methods. As described in the Self-Assessment Reports, faculty members regularly participate in training or workshops.

Faculty members are encouraged to write and publish technical articles and books, to attend external seminars and conferences in order to renew and broaden their technical knowledge, to attend short training sessions organized by the university and the department from time to time, and to give internal seminars and short training courses relevant to their fields of expertise. In addition, all staff members take part at in-house and external training courses.

The peers discuss with the members of the teaching staff the opportunities to develop their personal skills and learn that the teachers are satisfied with the internal qualification programme at ASOIU, their opportunities to further improving their didactic abilities and to spending some time abroad to attend conferences, workshops, or seminars.

In summary, the auditors confirm that ASOIU offers sufficient support mechanisms and opportunities for members of the teaching staff who wish for further developing their professional and teaching skills.

Criterion 4.3 Funds and equipment

Evidence:

- Self-Assessment Reports
- Video of the facilities
- Discussions during the audit

Preliminary assessment and analysis of the peers:
Basic funding of the degree programmes and the facilities is provided by ASOIU and the involved Faculties and Departments. Most of the financial sources are derived from government funding (85 %), which includes the tuition fees. The rest derives from cooperations with companies.

The provided budget allows the departments to conduct the degree programmes as well as some specific activities, including student exchange programmes and participation in international conferences. The teachers and students confirm during the audit that from their point of view, all programmes under review receive sufficient funding for teaching and learning activities. Hence, the Departments do not face any financial shortages. Of course, there is limited funding to modernise or add laboratory equipment, but there are sufficient resources for adequately teaching the classes.

The peer group understands that modern research equipment for sophisticated laboratory work, sufficient in terms of quality and quantity, is not readily available and that the funds are restricted. The students and the teachers confirm that there are no severe bottlenecks due to missing equipment or a lacking infrastructure. The basic technical equipment for teaching the students is available, although it is not state of the art in all cases.

Nevertheless, the peers cannot make a final assessment of the quality of the technical equipment and the infrastructure on the basis of the provided documents, videos of the laboratories, and the discussions alone. Only some laboratories are shown in the videos and especially the scope and design of the safety standards remain unclear. Moreover, it is not obvious, what experiments are done by the students in the different classes, what instruments they are allowed to operate by themselves and how much practical hands-on experience they gain. For this reason, the peers point out that it is necessary to assess the technical infrastructure, the laboratory equipment, and facilities onsite at ASOIU. A team of at least two experts together with an ASIIN programme manager should visit ASOIU in order to confirm that the infrastructure, the technical equipment, and scope of practical work meet the required standards.

In addition, the peers ask ASOIU to submit lists of the instruments and equipment that are available in all the laboratories, especially for those where students do the experiments or conduct their theses. This should include a list with the number of instruments available in each laboratory. If it is planned to buy additional equipment, a plan at what time what instruments will be purchased is required.

The students express their satisfaction with the library and the available literature. The library offers direct access to international literature, scientific journals, and publications.

From the students' point of view, there is sufficient access to current international literature and databases and a remote access is possible.

Besides the already mentioned restrictions, the peers judge the available funds, the technical equipment, and the infrastructure (laboratories, library, seminar rooms etc.) to comply with the requirements for sustaining the degree programmes.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 4:

The peers appreciate that ASOIU fully agrees with the peers on the importance of research activities and is trying to provide more room for the teachers for conducting research activities. The stipulated teaching load is based on the Order of the Cabinet of Ministers (No218, dated 24.11.2011) that indicates, "The teaching load for the faculty instructing in English shall be not less than 500 hours. The time allocated for lecturing, seminars, laboratory, and practical works shall not be less than 60% of the total annual teaching load." The rest of the time or more is used for research activities. The peers see that the teachers are conducting research activities and that they publish their results. However, the peers strongly recommend to put a stronger focus on research activities and to encourage teachers to establish more international cooperations and research projects. The peers thank ASOIU for providing a list of staff members that participated in international conferences.

The peers consider criterion 4 to be mostly fulfilled.

5. Transparency and documentation

Criterion 5.1 Module descriptions

Evidence:

- Self-Assessment Reports
- Module descriptions

Preliminary assessment and analysis of the peers:

After studying the module handbooks, the peers see that the module description include almost all necessary information (persons responsible for each module, intended learning outcomes, teaching methods, students' workload, awarded credit points, content, applicability, admission, examination requirements, forms of assessment, and literature references). However, the peers point out that the module descriptions do not make transpar-

ent what laboratory work is included and what experiments will be conducted by the students in the respective course. This information needs to be included in the module descriptions.

Criterion 5.2 Diploma and Diploma Supplement

Evidence:

- Self-Assessment Reports
- Sample Diploma for each degree programme

Preliminary assessment and analysis of the peers:
The peers point out that the students of all degree programmes need to be awarded a Diploma Supplement and a Transcript of Records after graduation. The Diploma Supplement should follow the European template and include all necessary information about the degree programme. This should include an updated description of the overall programme-specific learning outcomes (see Criterion 1.1). The Diploma Supplement should also include statistical data about the distribution of final grade according to the ECTS Users' Guide. This allows the reader to categorise the individual result. The Transcript of Records should list all courses that the graduate has completed, the achieved credits, grades, and cumulative GPA.

Criterion 5.3 Relevant rules

Evidence:

- Self-Assessment Reports
- Webpage ASOIU: http://asoiu.edu.az/en
- Webpage Faculty of Geological Exploration: http://fge.asoiu.edu.az/en/Bachelor/Speciality/23
- Webpage Ba Chemical Engineering: http://fct.asoiu.edu.az/en/Bachelor/Speciality/23
- Webpage Ma Chemical Engineering: http://fct.asoiu.edu.az/en/Master/Speciality/19
- Webpage Faculty of Oil and Gas Production: http://fogp.asoiu.edu.az/en/Department/6
- Webpage Faculty of Information Technologies and Management: http://www.mba.edu.az/education/mba/Detail/5

Preliminary assessment and analysis of the peers:
The auditors confirm that the rights and duties of both ASOIU and the students are clearly defined and binding.

However, the peers notice that the English websites of the programmes do not include much information. For this reason, the peers expect to update the English websites of the programmes, to align the information on the university's and the faculty's webpages, and to include information about the intended learning outcomes, study plans, module descriptions, and academic guidelines of each degree programme and make them thus available to all relevant stakeholders. In addition, ASOUI needs to make sure that the homepages of all degree programmes under review are easily accessible via ASOIU's homepage.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 5:

The peers expect ASOIU to submit the updated module handbooks and a sample Diploma Supplement for each programme in the further course of the procedure. The provided sample for the Bachelor's programme Oil and Gas Engineering is fine; however, the programme objectives should be aligned with the newly worded overall intended learning outcomes. The same issue is relevant for the sample Diploma Supplement of the Bachelor's programme Geology and Geophysical Engineering.

The peers consider criterion 5 to be mostly fulfilled.

6. Quality management: quality assessment and development

Evidence:

- Self-Assessment Reports
- Academic Guidelines
- Discussions during the audit

Preliminary assessment and analysis of the peers:
The peers discuss the quality management system at ASOIU in the course of the different discussions. They learn that there is a continuous process in order to improve the quality of the degree programmes and it is carried out through internal quality assurance.

The quality assurance of the different Departments and Faculties is conducted through meetings. All departmental chairpersons are required to attend the faculty meetings whereas all teaching staff has to attend the departmental meetings. The aim of the departmental meetings is to take corrective actions in order to improve the quality of teaching and learning.

Questionnaires are conducted anonymously through ASOIU's digital platform "Unibook". The questionnaires are distributed and evaluated at the end of the semester. With 12 questions, the students are asked to give their feedback on the teaching content, communication, laboratory work, etc.

In case of negative feedback, the Head of Departments is talking to the respective teacher and measure to improve the situation are applied. These measures include investigation of the negative cases and observance of the teacher's performance in class for some period. If no improvement is achieved, the teacher can be replaced.

Students also are involved in the further development of the degree programmes by submitting their ideas and recommendations (there is special box in the Faculty building to collect any suggestions), which are analysed by the respective Department.

The auditors gain the impression that the departments take the students' feedback seriously and changes are made if necessary. In case of negative feedback, the Head of Department talks to the respective teacher, analyses the problem, and offers guidance. There are regular meetings with students where they can voice their issues and suggestions. Nevertheless, the peers see that the result of the questionnaires are not directly discussed with the students. As students' feedback is an invaluable tool for assessing the quality of teaching and learning it is important to close the feedback loops. Consequently, the peers expect ASOIU to inform students directly about the results of the questionnaires and the teachers should discuss with them about possible improvements in the respective course. The feedback loops need to be closed.

The peers discuss with the representatives of ASOIU's partners from public institutions and private companies if there are regular meetings with the partners on faculty or department level, where they discuss the needs and requirements of the employers and possible changes to the degree programmes. They learn that some employers and alumni are invited to give their feedback on the content of the degree programmes. The peers appreciate that ASOIU stays in contact with its alumni and has a close relation with its partners from the industry. However, only an academic advisory board on university level exists. As the peers consider the input of the employers to be very important for the further improvement of the degree programmes, they appreciate the existing culture of quality assurance

with the involvement of employer in the quality assurance process. Nevertheless, they recommend establishing an academic advisory board at each department. The advisory board should consist of a group of professionals, employers, and experts of the relevant fields from outside the university (e.g. companies and governmental institutions). Including students, professionals, and employers in the different boards will help further developing the degree programmes.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 6:

The peers appreciate that ASOIU agrees that students' feedback is an invaluable tool for assessing the quality of teaching and learning, and that the results of questionnaires will be directly discussed with students on tutor level. The peers expect ASOIU to submit a verification that this new policy has been established.

The peers cannot confirm that ASOIU has established an advisory board for the Mechatronics programme, as no information about this can be found on ASOIU's webpage.

The peers consider criterion 6 to be mostly fulfilled.

D Additional Documents

Before preparing their final assessment, the peers ask that the following missing or unclear information be provided together with the comment of the Higher Education Institution on the previous chapters of this report:

- More sample exams from all degree programmes, for mechatronics from: PHYS1101 Applied Physics, MECH1102 Engineering Mechanics 1, EENG1101 Electrical Engineering 1, MATH1201 Engineering Mathematics 2, COMP1201 Fundamentals of Programming 2, ENG2101 Control Engineering 1, TECH2201 Digital Signal Processing, ENG2201 Control Engineering 2, COMP3101 Modelling and Simulation of Dynamic Systems

- Lists of the instruments and equipment that are available in all the laboratories, especially for those where students do the experiments or conduct their theses. This should include a list with the number of instruments available in each laboratory for hands-on practical work (not the PC Pools). If it is planned to buy additional equipment, a plan at what time what instruments will be purchased is required.

E Comment of the Higher Education Institution (29.04.2022)

ASOIU provides a detailed statement and the following documents:

- List of teachers who participated in international conferences
- List of laboratory equipment
- Sample exams
- List of advisory board members

F Summary: Peer recommendations (13.05.2022)

Taking into account the additional information and the comments given by ASOIU, the peers summarize their analysis and **final assessment** for the award of the seals as follows:

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Chemical Engineering	With requirements for one year	-	30.09.2027
Ma Chemical Engineering	With requirements for one year	-	30.09.2027
Ba Geology and Geophysical Engineering	With requirements for one year	-	30.09.2027
Ba Oil and Gas Engineering	With requirements for one year	-	30.09.2027
Ba Mechatronics	With requirements for one year	-	30.09.2027

Requirements

For all degree programmes

A 1. (ASIIN 3) Exams need to be more competence related and not only include the testing of memorised knowledge.

A 2. (ASIIN 4.3) It is necessary to visit and assess the technical infrastructure, safety measures, and facilities onsite at ASOIU.

A 3. (ASIIN 5.1) The module descriptions need to include information on the included laboratory work and what experiments will be conducted by the students.

A 4. (ASIIN 5.1) The Diploma Supplement should follow the European template and needs to include statistical data about the distribution of final grade according to the ECTS Users' Guide.

A 5. (ASIIN 5.3) Make the information about the degree programmes (study plans, module descriptions, intended learning outcomes, etc.) in English available to all stakeholders e.g. by publishing them on the university's webpage.

A 6. (ASIIN 6) Close the feedback cycles and inform the students directly about the results of the course questionnaires.

For the Master's degree programme Chemical Engineering

A 7. (ASIIN 1.1) The overall competences aimed for in the degree programme must be specified in a programme-specific manner. There needs to be a difference in the intended learning outcomes for the three specialisations.

Recommendations

For all degree programmes

E 1. (ASIIN 2.1) It is recommended to further promote the students' English proficiency especially their ability of actively speaking English.

E 2. (ASIIN 4.1) It is recommended to send more teachers abroad e.g. for attending PhD programmes and to invite more international guest lecturers.

E 3. (ASIIN 4.3) It is recommended to put a stronger focus on research activities and teachers should be encouraged to establish international cooperations and research projects.

G Comment of the Technical Committees (13.06.2022)

Technical Committee 01 – Mechanical Engineering/Process Engineering (13.06.2022)

Assessment and analysis for the award of the ASIIN seal:

The Technical Committee discusses the procedure and follows the assessment of the peers without any changes.

The Technical Committee 01 – Mechanical Engineering/Process Engineering recommends the award of the seals as follows:

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Chemical Engineering	With requirements for one year	-	30.09.2027
Ma Chemical Engineering	With requirements for one year	-	30.09.2027
Ba Geology and Geophysical Engineering	With requirements for one year	-	30.09.2027
Ba Oil and Gas Engineering	With requirements for one year	-	30.09.2027
Ba Mechatronics	With requirements for one year	-	30.09.2027

Technical Committee 02 – Electrical Engineering/Information Technology (10.06.2022)

Assessment and analysis for the award of the ASIIN seal:

The TC discusses the procedure and agrees with the proposed requirements and recommendations.

The Technical Committee 02 – Electrical Engineering/Information Technology recommends the award of the seals as follows:

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Chemical Engineering	With requirements for one year	-	30.09.2027
Ma Chemical Engineering	With requirements for one year	-	30.09.2027
Ba Geology and Geophysical Engineering	With requirements for one year	-	30.09.2027
Ba Oil and Gas Engineering	With requirements for one year	-	30.09.2027
Ba Mechatronics	With requirements for one year	-	30.09.2027

Technical Committee 09 – Chemistry, Pharmacy (08.06.2022)

Assessment and analysis for the award of the ASIIN seal:

The Technical Committee discusses the procedure and also sees that a follow-up inspection to assess the infrastructure and laboratory facilities is useful. The proposed conditions and recommendations are approved.

The Technical Committee 09 – Chemistry, Pharmacy recommends the award of the seals as follows:

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Chemical Engineering	With requirements for one year	-	30.09.2027
Ma Chemical Engineering	With requirements for one year	-	30.09.2027
Ba Geology and Geophysical Engineering	With requirements for one year	-	30.09.2027
Ba Oil and Gas Engineering	With requirements for one year	-	30.09.2027
Ba Mechatronics	With requirements for one year	-	30.09.2027

Technical Committee 11 – Geo Sciences (13.06.2022)

Assessment and analysis for the award of the ASIIN seal:

The TC discusses the procedure and agrees with the proposed requirements and recommendations.

The Technical Committee 11 – Geo Sciences recommends the award of the seals as follows:

Degree Programme	**ASIIN-seal**	**Subject-specific label**	**Maximum duration of accreditation**
Ba Chemical Engineering	With requirements for one year	-	30.09.2027
Ma Chemical Engineering	With requirements for one year	-	30.09.2027
Ba Geology and Geophysical Engineering	With requirements for one year	-	30.09.2027
Ba Oil and Gas Engineering	With requirements for one year	-	30.09.2027
Ba Mechatronics	With requirements for one year	-	30.09.2027

H Decision of the Accreditation Commission (24.06.2022)

Assessment and analysis for the award of the subject-specific ASIIN seal:

The Accreditation Commission discusses the procedure and agrees with the assessment of the peer group and the Technical Committees.

The Accreditation Commission decides to award the following seals:

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Chemical Engineering	With requirements for one year	-	30.09.2027
Ma Chemical Engineering	With requirements for one year	-	30.09.2027
Ba Geology and Geophysical Engineering	With requirements for one year	-	30.09.2027
Ba Oil and Gas Engineering	With requirements for one year	-	30.09.2027
Ba Mechatronics	With requirements for one year	-	30.09.2027

Requirements

For all degree programmes

A 1. (ASIIN 3) Exams need to be more competence related and not only include the testing of memorised knowledge.

A 2. (ASIIN 4.3) It is necessary to visit and assess the technical infrastructure, safety measures, and facilities onsite at ASOIU.

A 3. (ASIIN 5.1) The module descriptions need to include information on the included laboratory work and what experiments will be conducted by the students.

A 4. (ASIIN 5.1) The Diploma Supplement should follow the European template and needs to include statistical data about the distribution of final grade according to the ECTS Users' Guide.

A 5. (ASIIN 5.3) Make the information about the degree programmes (study plans, module descriptions, intended learning outcomes, etc.) in English available to all stakeholders e.g. by publishing them on the university's webpage.

A 6. (ASIIN 6) Close the feedback cycles and inform the students directly about the results of the course questionnaires.

For the Master's degree programme Chemical Engineering

A 7. (ASIIN 1.1) The overall competences aimed for in the degree programme must be specified in a programme-specific manner. There needs to be a difference in the intended learning outcomes for the three specialisations.

Recommendations

For all degree programmes

E 1. (ASIIN 2.1) It is recommended to further promote the students' English proficiency especially their ability of actively speaking English.

E 2. (ASIIN 4.1) It is recommended to send more teachers abroad e.g. for attending PhD programmes and to invite more international guest lecturers.

E 3. (ASIIN 4.3) It is recommended to put a stronger focus on research activities and teachers should be encouraged to establish international cooperations and research projects.

I Fulfilment of Requirements (23.06.2023)

Analysis of the peers and the Technical Committees (12.06.2023)

Requirements

For all programmes

A 1. (ASIIN 3) Exams need to be more competence related and not only include the testing of memorised knowledge.

Initial Treatment	
Peers	Not fulfilled Vote: unanimous Justification: ASOIU did not provide transparent information on this issue.
TC 01	Not fulfilled Vote: unanimous Justification: The Technical Committee discusses the procedure and follows the assessment of the peers without any changes.
TC 02	Not fulfilled Vote: unanimous Justification: The members follow the vote of the experts.
TC 09	Not fulfilled Vote: unanimous Justification: The Technical Committee agrees with the peers' assessment.
TC 11	Not fulfilled Vote: unanimous Justification: The Technical Committee follows the assessment of the peers.

A 2. (ASIIN 4.3) It is necessary to visit and assess the technical infrastructure, safety measures, and facilities onsite at ASOIU.

Initial Treatment	
Peers	Fulfilled Vote: unanimous Justification: The site assessment verified the impression provided by the university in March 2022. The laboratories provide

	an infrastructure, which supports the learning outcomes defined. Equipment is very well maintained and oriented at the needs of up-to-date education. Test stands are designed for students to perform hands-on experiments. For all experimental work carried out by the students, they are requested to prepare beforehand, take notes during the performance of the experiment and write a report about their observations including a conclusion. Safety measurements are in place at required levels.
TC 01	Fulfilled Vote: unanimous Justification: The Technical Committee discusses the procedure and follows the assessment of the peers without any changes.
TC 02	Fulfilled Vote: unanimous Justification: The members follow the vote of the experts.
TC 09	Fulfilled Vote: unanimous Justification: The Technical Committee agrees with the peers' assessment.
TC 11	Fulfilled Vote: unanimous Justification: The Technical Committee follows the assessment of the peers.

A 3. (ASIIN 5.1) The module descriptions need to include information on the included laboratory work and what experiments will be conducted by the students.

Initial Treatment	
Peers	Not fulfilled Vote: unanimous Justification: ASOIU did not provide transparent information on this issue.
TC 01	Not fulfilled Vote: unanimous Justification: The Technical Committee discusses the procedure and follows the assessment of the peers without any changes.
TC 02	Not fulfilled Vote: unanimous Justification: The members follow the vote of the experts.
TC 09	Not fulfilled Vote: unanimous Justification: The Technical Committee agrees with the peers' assessment.
TC 11	Not fulfilled Vote: unanimous

	Justification: The Technical Committee follows the assessment of the peers.

A 4. (ASIIN 5.1) The Diploma Supplement should follow the European template and needs to include statistical data about the distribution of final grade according to the ECTS Users' Guide.

Initial Treatment	
Peers	Fulfilled Vote: unanimous Justification: ASOIU has submitted sample Diploma Supplements, which follow the European template.
TC 01	Fulfilled Vote: unanimous Justification: The Technical Committee discusses the procedure and follows the assessment of the peers without any changes.
TC 02	Fulfilled Vote: unanimous Justification: The members follow the vote of the experts.
TC 09	Fulfilled Vote: unanimous Justification: The Technical Committee agrees with the peers' assessment.
TC 11	Fulfilled Vote: unanimous Justification: The Technical Committee follows the assessment of the peers.

A 5. (ASIIN 5.3) Make the information about the degree programmes (study plans, module descriptions, intended learning outcomes, etc.) in English available to all stakeholders e.g. by publishing them on the university's webpage.

Initial Treatment	
Peers	Not fulfilled Vote: unanimous Justification: ASOIU did not provide transparent information on this issue.
TC 01	Not fulfilled Vote: unanimous Justification: The Technical Committee discusses the procedure and follows the assessment of the peers without any changes.
TC 02	Not fulfilled Vote: unanimous Justification: The members follow the vote of the experts.
TC 09	Not fulfilled

	Vote: unanimous Justification: The Technical Committee agrees with the peers' assessment.
TC 11	Not fulfilled Vote: unanimous Justification: The Technical Committee follows the assessment of the peers.

A 6. (ASIIN 6) Close the feedback cycles and inform the students directly about the results of the course questionnaires.

Initial Treatment	
Peers	Not fulfilled Vote: unanimous Justification: ASOIU did not provide transparent information on this issue.
TC 01	Not fulfilled Vote: unanimous Justification: The Technical Committee discusses the procedure and follows the assessment of the peers without any changes.
TC 02	Not fulfilled Vote: unanimous Justification: The members follow the vote of the experts.
TC 09	Not fulfilled Vote: unanimous Justification: The Technical Committee agrees with the peers' assessment.
TC 11	Not fulfilled Vote: unanimous Justification: The Technical Committee follows the assessment of the peers.

For the Master's degree programme Chemical Engineering

A 7. (ASIIN 1.1) The overall competences aimed for in the degree programme must be specified in a programme-specific manner. There needs to be a difference in the intended learning outcomes for the three specialisations.

Initial Treatment	
Peers	Not fulfilled Vote: unanimous Justification: ASOIU did not provide transparent information on this issue.
TC 01	Not fulfilled Vote: unanimous

	Justification: The Technical Committee discusses the procedure and follows the assessment of the peers without any changes.
TC 02	Not fulfilled Vote: unanimous Justification: The members follow the vote of the experts.
TC 09	Not fulfilled Vote: unanimous Justification: The Technical Committee agrees with the peers' assessment.
TC 11	Not fulfilled Vote: unanimous Justification: The Technical Committee follows the assessment of the peers.

Decision of the Accreditation Commission (23.06.2023)

The AC decides that requirements A1, A3, A5, A6, and A7 are not fulfilled.

Justification:

The documents submitted by ASOIU are not well organised and it is not clear what document is relevant for what requirement. An accompanying description of the implemented measures, their development status with a concrete assignment of documents is missing.

The Accreditation Commission decides to award the following seals:

Degree Programme	**ASIIN seal**	**Subject-specific Label**	**Maximum duration of accreditation**
Ba Chemical Engineering	Requirements A1, A3, A5, A6, and A7 not fulfilled	-	prolongation for six months
Ma Chemical Engineering	Requirements A1, A3, A5, A6, and A7 not fulfilled	-	prolongation for six months

Degree Programme	ASIIN seal	Subject-specific Label	Maximum duration of accreditation
Ba Geology and Geophysical Engineering	Requirements A1, A3, A5, A6, and A7 not fulfilled	-	prolongation for six months
Ba Oil and Gas Engineering	Requirements A1, A3, A5, A6, and A7 not fulfilled	-	prolongation for six months
Ba Mechatronics	Requirements A1, A3, A5, A6, and A7 not fulfilled	-	prolongation for six months

J Fulfilment of Requirements (08.12.2023)

Analysis of the peers and the Technical Committees (22.11.2023)

Requirements

For all programmes

A 1. (ASIIN 3) Exams need to be more competence related and not only include the testing of memorised knowledge.

Second Treatment	
Peers	Fulfilled Vote: unanimous Justification: ASOIU has provided sample of adjusted exams, which are now more competence related.
TC 01	Fulfilled Vote: unanimous Justification: The TC agrees with the experts' assessment.
TC 02	Fulfilled Vote: unanimous Justification: The TC agrees with the experts' assessment.
TC 09	Fulfilled Vote: unanimous Justification: The TC agrees with the experts' assessment.
TC 11	Fulfilled Vote: unanimous Justification: The TC agrees with the experts' assessment.

A 3. (ASIIN 5.1) The module descriptions need to include information on the included laboratory work and what experiments will be conducted by the students.

Second Treatment	
Peers	Fulfilled Vote: unanimous Justification: ASOIU has updated the module descriptions, which now include all required information.
TC 01	Fulfilled

	Vote: unanimous Justification: The TC agrees with the experts' assessment.
TC 02	Fulfilled Vote: unanimous Justification: The TC agrees with the experts' assessment.
TC 09	Fulfilled Vote: unanimous Justification: The TC agrees with the experts' assessment.
TC 11	Fulfilled Vote: unanimous Justification: The TC agrees with the experts' assessment.

A 5. (ASIIN 5.3) Make the information about the degree programmes (study plans, module descriptions, intended learning outcomes, etc.) in English available to all stakeholders e.g. by publishing them on the university's webpage.

Second Treatment	
Peers	Fulfilled Vote: unanimous Justification: ASOIU has updated the homepages, which now present the necessary information.
TC 01	Fulfilled Vote: unanimous Justification: The TC agrees with the experts' assessment.
TC 02	Fulfilled Vote: unanimous Justification: The TC agrees with the experts' assessment.
TC 09	Fulfilled Vote: unanimous Justification: The TC agrees with the experts' assessment.
TC 11	Fulfilled Vote: unanimous Justification: The TC agrees with the experts' assessment.

A 6. (ASIIN 6) Close the feedback cycles and inform the students directly about the results of the course questionnaires.

Second Treatment	
Peers	Fulfilled Vote: unanimous Justification: ASOIU now informs the students about the results of the course questionnaires.
TC 01	Fulfilled

	Vote: unanimous Justification: The TC agrees with the experts' assessment.
TC 02	Fulfilled Vote: unanimous Justification: The TC agrees with the experts' assessment.
TC 09	Fulfilled Vote: unanimous Justification: The TC agrees with the experts' assessment.
TC 11	Fulfilled Vote: unanimous Justification: The TC agrees with the experts' assessment.

For the Master's degree programme Chemical Engineering

A 7. (ASIIN 1.1) The overall competences aimed for in the degree programme must be specified in a programme-specific manner. There needs to be a difference in the intended learning outcomes for the three specialisations.

Second Treatment	
Peers	Fulfilled Vote: unanimous Justification: ASOIU has provided distinctive intended learning outcomes for the three specialisations.
TC 01	Fulfilled Vote: unanimous Justification: The TC agrees with the experts' assessment.
TC 02	Fulfilled Vote: unanimous Justification: The TC agrees with the experts' assessment.
TC 09	Fulfilled Vote: unanimous Justification: The TC agrees with the experts' assessment.
TC 11	Fulfilled Vote: unanimous Justification: The TC agrees with the experts' assessment.

Decision of the Accreditation Commission (08.12.2023)

The Accreditation Commission follows the assessment of the experts and the Technical Committees and decides that all requirements are fulfilled.

The Accreditation Commission decides to award the following seals:

Degree Programme	**ASIIN seal**	**Subject-specific labels**	**Maximum duration of accreditation**
Ba Chemical Engineering	All requirements fulfilled	-	30.09.2027
Ma Chemical Engineering	All requirements fulfilled	-	30.09.2027
Ba Geology and Geophysical Engineering	All requirements fulfilled	-	30.09.2027
Ba Oil and Gas Engineering	All requirements fulfilled	-	30.09.2027
Ba Mechatronics	All requirements fulfilled	-	30.09.2027

Appendix: Programme Learning Outcomes and Curricula

According to the Self-Assessment Report, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor's degree programme Chemical Engineering:

1. Ability to solve complex issues and tasks by using the principles of mathematics, physics, chemistry and chemical engineering.

2. Ability to execute, coordinate, implement, substantiate laboratory processes while carrying out the experiments and to obtain and extract chemical compounds using standard methods and syntheses.

3. Ability to use the basics of mathematics, algorithmic principles and methods of computer engineering in the modelling, to design of chemical engineering systems, analyse and interpret data using statistical methods.

4. Ability to use the techniques, materials, skills and modern engineering tools which are used in engineering and to carry out industrial and chemical processes, control them and to apply chemical engineering principles at designing of these processes.

5. Ability to choose and use existing technologies, materials while undertaking project tasks and solving these issues in chemical engineering and ability to eliminate malfunctions that may occur in industrial and chemical processes or in laboratory equipment.

6. Ability to design systems, components, units and processes that meet the requirements, taking into account natural limitations such as economics, ecology, security and social aspects.

7. Ability to use the language skills to exchange and obtain some knowledge gained from the foreign sources.

8. Ability to analyse the problem, to identify the basic requirements, to justify the idea and critically evaluate the results and to compare them.

9. Ability to understand professional, ethical, legal and security issues and the responsibilities characteristic for engineering.

10. Ability to work productively in multidisciplinary groups, especially in projects requiring engineering skills and to carry out all work in accordance with relevant laws, regulations, standards, methods and guidelines.

The following curriculum is presented:

FIRST YEAR

I Semester (30 ECTS)					
Course Code	Course Name	Hours	ECTS	Category	Prerequisite
ENGL 1101	English I	3	6	ECS	
CHEM 1101	**General Chemistry I**	3	6	BS	
LAB 1101	**Introduction To Laboratory Safety & Hazardous Materials**	2	4	BS	
LAB 1102	**General Chemistry Laboratory**	2	4	BS	
PHYS 1101	**Engineering Physics I**	3	5	BS	
MATH 1101	**Calculus For Engineers I**	3	5	MT	

II Semester (30 ECTS)					
Course Code	Course Name	Hours	ECTS	Category	Prerequisite
ENGL 1201	English II	3	5	ECS	ENGL 1101
ENG 1201	**Introduction to Engineering Design**	3	5	OCE	
COMP 1201	**Computers And Chemical Engineering**	3	5	BS	
CHEM 1201	**General Chemistry II**	3	5	BS	**CHEM 1101**
MATH 1201	**Calculus For Engineers II**	3	5	MT	MATH 1101
PHYS 1201	**Engineering Physics II**	3	5	BS	**PHYS 1101**

SECOND YEAR

III Semester (30 ECTS)					
Course Code	Course Name	Hours	ECTS	Category	Prerequisite
CHEM 2101	**Chemical Engineering Material & Energy Balances**	3	5	OCE	**CHEM 1201**
CHEM 2102	**Organic Chemistry I**	3	6	BS	**CHEM 1201**
EXP 2101	**Exposition And Argumentation**	3	5	ECS	
MATH 2101	**Elementary Differential Equations**	3	5	MT	**MATH 1201**
ENGL 2101	**Technical English I**	3	5	ECS	
	Free Elective	3	4	ECS	

IV Semester (30 ECTS)					
Course Code	Course Name	Hours	ECTS	Category	Prerequisite
CHEM 2201	**Professional Practice And Ethics**	3	4	ECS	
CHEM 2202	**Chemical Engineering Thermodynamics I**	3	6	BS	**CHEM 2101**
ENGL 2201	**Technical English II**	3	5	ECS	**ENGL 2101**
COMP 2201	**Numerical Computing in Chemical and Biochemical Engineering**	3	5	MT	**COMP 1201**
	Technical Elective	3	5	ECE	
	Technical Elective	3	5	ECE	

THIRD YEAR

V Semester (30 ECTS)					
Course Code	Course Name	Hours	ECTS	Category	Prerequisite
CHEM 3101	**Chemical Engineering Thermodynamics II**	3	5	BS	**CHEM 2202**
CHEM 3102	**Fundamentals of Transport in Chemical and Biochemical Engineering**	3	5	OCE	**CHEM 2202**
ENG 3101	C**hemical Engineering Reactor Design**	3	5	OCE	**COMP 2201**
ECON 3101	**Principles Of Microeconomics** and **Macroeconomics**	3	5	ECS	
CHEM 3103	**Chemical Process Materials**	3	5	OCE	**PHYS 1101**
	Technical Elective	3	5	ECE	

VI Semester (30 ECTS)					
Course Code	Course Name	Hours	ECTS	Category	Prerequisite
ENG 3201	**Process Operations in Chemical and Biochemical Engineering**	3	4	OCE	**CHEM 3101**
ENG 3202	**Separations in Chemical and Biochemical Engineering**	3	6	OCE	**CHEM 3101**
LAB 3201	**Chemical Engineering Laboratory I**	3	5	OCE	
MATH 3201	**Applied Engineering Statistics**	3	5	MT	**MATH 1201**

CHEM 3201	**Chemical Process Design I**	3	5	OCE	ENG 3101
	Technical Elective	3	5	ECE	

FOURTH YEAR

VII Semester (30 ECTS)					
Course Code	Course Name	Hours	ECTS	Category	Prerequisite
ENG 4101	**Chemical Engineering Process Dynamics And Control**	3	5	OCE	ENG 3101
LAB 4101	**Chemical Engineering Laboratory II**	3	5	OCE	**LAB 3201**
CHEM 4101	**Chemical Process Safety**	3	5	OCE	ENG 3101
CHEM 4102	**Chemical Process Design II**	3	5	OCE	**CHEM 3201**
	Technical Elective	3	5	ECE	
	Technical Elective	3	5	ECE	

VIII Semester (30 ECTS)					
Course Code	Course Name	Hours	ECTS	Category	Prerequisite
	Practical training		21	PT	
	Bachelor Thesis with Final Presentation		9	BT	

According to the Self-Assessment Report, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Master's degree programme Chemical Engineering:

1. Ability to demonstrate well-developed erudition of mathematical-scientific and engineering principles of chemical engineering;

2. Ability to analyse and solve extraordinary or partly determined problems scientifically and reveal contesting specifications;

3. Ability to summarize and formulate complex problems regarding with a newest or emerging branch of their discipline;

4. Ability to apply innovative methods to problem-solving based on key principles and to evolve new scientific methods;

5. Ability to develop concepts and solutions for principally oriented and partly extraordinary points, considering other disciplines widely;

6. Ability to utilize creativity in elaborating new and inventive products, processes and methods;

7. Ability to identify, find, and provide needful information, as well as, plan and fulfil analytical, model and experimental investigations;

8. Ability to systematize and systematically unify knowledge of different areas and cope with the complexity;

9. Ability to assess applicable methods and their limits;

10. Ability to function efficiently as a team leader being composed of different disciplines and levels.

The following curriculum is presented:

FIRST YEAR

I Semester (30 ECTS)					
Course Code	Course Name	Hours	ECTS	Category	Prerequisite
ENGL 1101	Foreign Language	3	6	ECS	-
ENG 1101	History and Methodology of Chemical Engineering	1	2	BS	-
	Social electives	1	2	ECS	-
Specialization: **Industrial technology of inorganic substances**					
ENG 1102	Modern Technologies of Processing of Mineral Raw Materials	3	6	OCE	-
ENG 1103	Modern Electrochemical Technologies	3	6	OCE	-
	Elective	4	8	ECE	-
Specialization: **Technology of petrochemical synthesis**					
ENG 1104	Total synthesis and synthesis planning	3	6	OCE	-
ENG 1105	Modern problems of synthesis of dielectric organic compounds	3	6	OCE	-
	Elective	4	8	ECE	-
Specialization: **Oil refining technology**					
ENG 1106	Project management in the oil refining industry	4	8	OCE	-
ENG 1107	Modern processing technology of lubricants	3	6	OCE	-
	Elective	3	6	ECE	-

II Semester (30 ECTS)					
Course Code	Course Name	Hours	ECTS	Category	Prerequisite
PED 1201	Pedagogy of High School	2	4	ECS	-
ENG 1201	Modern Issues of Chemical Engineering	2	4	BS	-

Specialization: **Industrial technology of inorganic substances**					
ENG 1202	Innovative Technology of Inorganic Substances	4	7	OCE	-
ENG 1203	Ceramic and glass technology	3	7	OCE	-
ENG 1204	Advanced Technologies of Binding Materials	4	8	OCE	-
Specialization: **Technology of petrochemical synthesis**					
ENG 1205	Catalysis, organocatalysis	4	8	OCE	-
ENG 1206	Additives and plasticizers	4	8	OCE	-
ENG 1207	Modern technologies of industrial organic chemistry	3	6	OCE	-
Specialization: **Oil refining technology**					
ENG 1208	Modern technology of catalytic processes in oil refining	3	6	OCE	-
ENG 1209	Modelling, Simulation and Optimization of technical processes	2	4	OCE	-
ENG 1210	Modern methods of analysis in the oil industry	3	6	OCE	-
	Elective	3	6	ECE	-

SECOND YEAR

III Semester (30 ECTS)					
Course Code	Course Name	Hours	ECTS	Category	Prerequisite
PSY 2101	Psychology	1	2	ECS	-
CHEM 2101	Research Techniques	2	4	BS	-
Specialization: **Industrial technology of inorganic substances**					
ENG 2101	Technology of catalysts and adsorbents	4	8	OCE	-
	Elective	4	8	ECE	-
	Elective	4	8	ECE	-
Specialization: **Technology of petrochemical synthesis**					
ENG 2102	The use of wastes of petrochemical synthesis	4	8	OCE	-
	Elective	4	8	ECE	-

	Elective	4	8	ECE	-
Specialization: **Oil refining technology**					
ENG 2103	Alternative fuel production technology	3	6	OCE	-
ENG 2104	Development of oil refining process management systems	3	6	OCE	-
	Elective	3	6	ECE	-
	Elective	3	6	ECE	-

IV Semester (30 ECTS)					
Course Code	Course Name	Hours	ECTS	Cate-gory	Prerequi-site
For all specializations					
RT 2201	Research training	-	6	RT	-
RPT 2201	Research and pedagogical training	-	6	RT	-
MT 2201	Master Thesis defence	-	18	MT	-

According to the Self-Assessment Report, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor's degree programme Geology and Geophysical Engineering:

1. Ability to understand and apply knowledge of mathematics, science, and engineering
2. Ability to analyse a problem, identify and define appropriate solutions from geological point of view.
3. Ability to apply mathematical foundations, algorithmic principles and acquired skills in design of geological models.
4. Ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social aspects
5. Planning and carrying out experiments, as well as analysing and interpreting geoscience data
6. Ability to use the techniques, skills and modern engineering tools necessary for engineering practice
7. Understanding of professional, ethical, legal, security and social issues and responsibilities that apply to engineering
8. Ability to work productively in a multidisciplinary team, in particular to carry out projects involving geological engineering skills
9. Ability to communicate effectively with a range of audiences
10. A recognition of the need for, and an ability to engage in life-long learning

Updated learning outcomes (submitted together with the statement from ASOIU):

1. demonstrate proficiency in common practical skills in geology and geophysics
2. identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics;
3. explain various geological and geophysical concepts, theories, processes, terminologies and features.
4. explain how geologists and geophysics are used to predict rock chemistry and/or mineralogy;
5. discuss advantages and limitations to various geophysical methods with respect to sensitivities and geologic conditions;

6. predict the geophysical response to simplified geological structures, to carry out different methods in the field and laboratory to gather geological and geophysical data;
7. design an appropriate set of geophysical surveys to investigate a potential subsurface target generate a sound geological and geophysical interpretation of a given area based on available data;
8. communicate effectively through words, graphs, tables, and orally using prepared presentations;
9. develop enhanced numerical skills and computer literacy, development in the use of a number of specialized software products such as Netpro Mine and Netcad;
10. define geological and geophysical problems and design appropriate approach and methods that can be utilized using both computer- and non-computer-based techniques.

The following **curriculum** is presented:

I Semester (30 ECTS)				
Course Code	Course Name	Hours	Category	Prerequisite
ENGL 1101	English I	6	ECS	None
MATH 1101	Calculus for Engineers I	6	MT	None
CHEM 1101	General Chemistry I	6	BS	None
LAB 1101	Introduction to Laboratory Safety & Hazardous Materials	3	BS	None
EXP 1101	Exposition and Argumentation	6	ECS	None
LAB 1102	General Chemistry Laboratory	3	BS	CHEM 1101

II Semester (30 ECTS)				
Course Code	Course Name	Hours	Category	Prerequisite
ENGL 1201	English II	6	ECS	ENGL 1101
MATH 1201	Calculus for Engineers II	6	MT	MATH 1101
ENG 1201	Introduction to Engineering Design	6	BS	None
PHYS 1201	Engineering Physics I	3	BS	None
GEO 1201	Physical and Environmental Geology	6	CGE	None
ENG 1202	Study and Careers in Engineering	3	ECS	None

SECOND YEAR

III Semester (30 ECTS)				
Course Code	Course Name	Hours	Category	Prerequisite
MATH 2101	Analytic Geometry and Linear Algebra	4	MT	MATH 1201
PHYS 2101	**Engineering Physics II**	6	BS	PHYS 1201
COMP 2101	**Fundamentals Of Computer Applications In Geological Engineering**	6	BS	GEO 1201
ENGL 2101	**Technical English 1**	5	ECS	None
ENG 2101	**Principles Of Geological Engineering**	5	CGE	None
	Elective	4	ECS	None

IV Semester (30 ECTS)				
Course Code	Course Name	Hours	Category	Prerequisite
MATH 2201	**Elementary Differential Equations**	4	MT	MATH 1201
MENG 2201	**Statics**	5	BS	MATH 1201
GEO 2201	**Physical Mineralogy And Petrology**	5	CGE	GEO 1201

GEO 2202	**Geomorphology And Terrain Analysis**	5	CGE	GEO 1201
ENGL 2201	**Technical English 2**	5	ECS	ENGL 2101
	Elective	5	EGE	None

THIRD YEAR

V Semester (30 ECTS)				
Course Code	Course Name	Hours	Category	Prerequisite
MENG 3101	**Engineering Mechanics-Dynamics**	4	BS	MENG 2201
MECH 3101	**Mechanics Of Materials**	6	BS	MENG 2201
GEO 3101	**Subsurface Hydrology**	6	CGE	GEO 1201
GEO 3102	**Structural Geology**	6	CGE	GEO 1201
LAB 3101	**Structural Geology Lab**	3	CGE	GEO 3102
	Elective	5	CGE	None

VI Semester (30 ECTS)				
Course Code	Course Name	Hours	Category	Prerequisite
ENG 3201	**Engineering Fluid Mechanics**	5	BS	GEO 2202
GEO 3201	**Subsurface Exploration**	5	CGE	GEO 1201
	Elective	5	CGE	None
	Elective	5	ECS	None
	Elective	5	CGE	None
	Elective	5	CGE	None

FOURTH YEAR

VII Semester (30 ECTS)				
Course Code	Course Name	Hours	Category	Prerequisite
GEO 4102	**Current Topics and Professionalism**	2	CGE	None
ENG 4101	**Engineering Geology And Geotechnics**	6	CGE	**GEO 2202**
ENG 4102	**Geological Engineering Design**	6	CGE	None
ENG 4103	**Fundamentals of Geotechnical Engineering**	6	CGE	**GEO 1201 MECH 3101 ENG 3201**
MATH 4101	**Statistical Methods in Geology and Engineering**	5	MT	None
ENG 4201	Geological Engineering Field Methods	5	CGE	None

VIII Semester (30 ECTS)				
Course Code	Course Name	Hours	Category	Prerequisite
	Practical training	21		
	Bachelor work with Final Presentation	9		

MT: Mathematics, BS: Basic Science, ECS: English Composition and Social Sciences, CGE: Compulsory Geological Engineering Courses, EGE: Elective Geological Engineering Courses, BT: Bachelor's Thesis, PT: Practical Training.

Elective courses

CODE	COURSE NAME	PREREQUISITS	ECTS	HOURS
HIST 2101	History of Azerbaijan	None	4	3
GEO 5001	Geological Aspects Of Hazardous Waste Management	None	5	3
GEO 5002	Intermediate Subsurface Hydrology And Contaminant Transport Mechs	GEO 3101	5	3
GEO 5003	Environmental Aspects Of Mining	None	5	3
GEO 5004	Risk Assessment In Environmental Studies	None	5	3
GEO 5005	Geophysical Field Methods	None	5	3
ENG 5003	Environmental and Engineering Geophysics	None	5	3
ENG 5006	Rock Engineering	None	5	3
GEO 5006	Renewable Energy Systems	None	5	3
GEO 5007	Properties Of Hydrocarbon Fluids	None	5	3
ENG 5007	Petroleum Reservoir Engineering	None	5	3
ENG 5008	Foundation Engineering	None	5	3
GEO 5008	Oil and gas reservoir geology	None	5	3
GEO 5009	Geology of mineral deposits	None	5	3
GEO 5010	Geodynamic environment of oil and gas basins	None	5	3

According to the Self-Assessment Report, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor's degree programme Oil and gas Engineering:

1. The ability to understand and apply knowledge of mathematics, natural Sciences and technology

2. The ability to analyse a problem, identify and define the computing requirements appropriate to its solution.

3. Ability to apply mathematical foundations, algorithmic principles and methods of engineering in modelling and design of systems development of oil and gas fields.

4. The ability to design a system, component, or process to meet desired needs within real constraints such as economic, environmental, social aspects

5. Planning and conducting experiments, and analysis and interpretation of data.

6. The ability to use the techniques, skills and modern engineering tools necessary for engineering practice.

7. Understanding of professional, ethical, legal, social, and social issues and responsibilities that relate to engineering.

8. Ability to work productively in an interdisciplinary team, in particular, to execute projects using skills of petroleum engineering.

9. Ability to communicate effectively with a range of audiences

10. Recognition of the need and ability to participate in learning throughout life.

Updated learning outcomes (submitted together with the statement from ASOIU):

1. Ability to apply and deeply understand mathematical, technical and natural disciplines.
2. The ability to conduct a deep analysis of the problem, aimed at identifying the necessary requirements and methods for solving it.
3. The ability to combine knowledge of the mathematical foundations, algorithms and methods of the hydrocarbon field development process in reservoir modelling and reservoir system design.
4. According to the knowledge and skills acquired during the training, develop innovative processes and components for systems that meet modern requirements from an economic, environmental and social point of view.
5. Ability to interpret data, obtained as a result of planning and conducting various kinds of research and experiments, as well as the ability to predict the further development of the system.

6. Ability to apply the skills and knowledge of engineering when working in a multidisciplinary team.
7. Constant and continuous self-development and learning for a long time.
8. Apply knowledge of information technology and oil and gas to propose appropriate solutions to oil and gas operations.
9. Critically apply the essential tools available for finding and characterizing hydrocarbon accumulations using formation evaluation techniques.
10. Ability to demonstrate detailed knowledge and application of operational and technical activities involved in exploration and production.

The following **curriculum** is presented:

First Year, Fall Semester 30 Credits					
Course Code	Course Name	(Hour) Credit	ECTS	Category	Prerequisite
ENG1101	English I	3	6	ECS	
MATH101	Calculus I	3	6	MT	
OGEN1101	Intro to Petroleum Engineering	2	3	OGOE	
CHEM1101	General Chemistry I	3	6	BS	
LAB1101	Introduction to Laboratory Safety & Hazardous Materials	2	3	BS	
ECON1101	Industrial Economics & Finance	3	6	BS	

First Year, Spring Semester 30 Credits					
Course Code	Course Name	(Hour) Credit	ECTS	Category	Prerequisite
ENG1201	English II	3	5	ECS	ENG1101
MATH1201	Calculus II	3	6	MT	MATH101
CHEM1201	General Chemistry II	3	6	BS	CHEM1101
LAB1201	General Chemistry II Lab	2	4	BS	CHEM1201
PHYS1201	General Physics	3	5	BS	
TECH1201	Statics & Mechanics	2	4	BS	

Second Year, Fall Semester 30 Credits					
Course Code	Course Name	(Hour) Credit	ECTS	Category	Prerequisite
ENG2101	Technical English I	3	6	ECS	ENG 1201
EXP2101	Exposition And Argumentation	3	6	ECS	
MATH2101	Analytical Geometry & Linear Algebra	3	6	MT	MATH1201
OGEN2101	Reservoir Fluid Flow	3	5	OGOE	OGEN 1101
LAB2101	Reservoir Fluid Flow Lab	2	3	OGOE	OGEN2101
NTE	Elective	3	4	ECS	

Second Year, Spring Semester 30 Credits					
Course Code	Course Name	(Hour) Credit	ECTS	Category	Prerequisite
ENG2202	Technical English II	3	5	ECS	ENG2101
MATH2202	Differential Equations	3	6	MT	MATH2101
OGEN2202	Drilling Fluids	3	6	OGOE	OGEN1101
LAB2201	Drilling Fluids Laboratory	2	4	OGOE	OGEN2201
OGEN2201	Petrolphysics & Formation Eval.	3	6	OGOE	
LAB2202	Petroleum & Formation Eval Lab	2	3	OGOE	OGEN2201

Third Year, Fall Semester 30 Credits					
Course Code	Course Name	(Hour) Credit	ECTS	Category	Prerequisite
OGEN3101	Improved Petroleum Recovery	3	5	OGOE	OGEN2101
OGEN3101	Phase Behavior	3	6	OGOE	
OGEN3101	Drilling Engineering	3	6	OGOE	
LAB3101	Drilling Engineering Lab	2	3	OGOE	OGEN3101
TECH3102	Senior Design I	2	4	CS	
TE	Technical Elective	3	6	EGOE	

Third Year, Spring Semester 30 Credits					
Course Code	Course Name	(Hour) Credit	ECTS	Category	Prerequisite
OGEN3202	Reservoir Engineering	3	6	OGOE	
OGEN3202	Transport Phenomenon	3	5	OGOE	
TECH3202	Senior Design II	2	4	CS	
OGEN3202	Production Engineering	3	5	OGOE	
LAB3201	Production Engineering Lab	2	4	OGOE	OGEN3202
TE	Technical Elective	3	6	EGOE	

Fourth Year, Fall Semester 30 Credits					
Course Code	Course Name	(Hour) Credit	ECTS	Category	Prerequisite
OGEN4101	Natural Gas Engineering	3	4	OGOE	
OGEN4101	Well Design Control	3	4	OGOE	OGEN3101
OGEN4101	Well Comp; P & R	3	4	OGOE	
TE	Technical Elective	3	6	EGOE	
TE	Technical Elective	3	6	EGOE	
TE	Technical Elective	3	6	EGOE	

Fourth Year, Spring Semester					
Course Code	Course Name	(Hour) Credit	ECTS	Category	Prerequisite
	Practical training		21	PT	
	Bachelor Thesis with Final Presentation		9	BT	

According to the Self-Assessment Report, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor's degree programme Mechatronics:

Successful graduates should be able to demonstrate a range of cognitive and intellectual skills as well as techniques, which are specific for managerial and technical problems. On the successful completion of the whole course students have to:

- get problem-solving skills needed for making decisions in non-standard and uncertain situations;
- be able to impart methodical and social key qualifications such as communication and teamwork, presentation and moderation skills and the skills to use modern information technologies;
- acquire a first professional degree with the level of knowledge which enable to work as a mechanical engineer;
- acquire the knowledge on engineering, planning activities, especially in the international context;
- be taught the knowledge and skills valuable in the area of the interface of engineering and business administration;
- get the core knowledge in the field of machine engineering;
- get the simultaneous acquisition of cultural and linguistic competency to engage in engineering activities in an international field;
- acquire basic knowledge that will enable them to understand the phenomena occurring in the fields of industrial engineering;
- acquire an understanding of the relationships between product development, product manufacturing and product use in economic and environment-related fields;
- be able to combine theory and practice to analyse engineering issues basing on methodical research methods as well as have an understanding of applicable techniques and methods and their limitations;
- be able perform their knowledge and understanding in use of databases and other information sources needed for their work;
- be able to communicate the content of problems of mechanical engineering both with colleagues and with not technically qualified employees as well as with a wide public too;
- be also able to penetrate products, processes and methods of the disciplines of system engineering;
- get a base for analysing, evaluating, modelling, simulating and optimizing methods;

- get a basic understanding of design methods;
- get the ability to share their knowledge in different areas, taking into account business management fields in order to apply responsible environmental and safety requirements and their own responsibility to deepen an awareness of the non-technical implications of engineering activity;
- understand how global competitive environments are changing business practice.

Updated objectives and learning outcomes (submitted together the statement from ASOIU):

objectives:

- to provide graduate students with a high quality education in both technician and business management fields and enable the graduates to earn management and technical positions in state and non-state organizations, business and other institutions;
- to provide students the ability to effectively solve managerial and technical problems related to planning, organizing and controlling in all areas of business;
- Taking into account that program is designed to also prepare students for senior management roles, it is essential that graduates should also be able to demonstrate relevant personal and interpersonal skills that include cognitive skills of critical thinking, analysis and synthesis as well as the capability to identify assumptions, evaluate statements in terms of evidence, to detect false logic or reasoning, to define terms adequately and make an appropriate generalization if needed.

learning outcomes:

1. Identify, formulate, and solve complex mechatronics engineering problems properly applying the principles, methods, techniques and tools of engineering, science, and mathematics.
2. Ability to analyze a problem identify algorithmic principles, and computer simulation techniques in the modelling and design of computer-based systems.
3. Get problem-solving skills needed for making decisions in uncertain situations.
4. Acquire an understanding ethical and social issues responsibilities and the relationships between product development, product manufacturing and product use in environment-related fields.
5. Design systems, components, or processes meeting specified needs for broadly defined engineering problems and to penetrate products, processes, and methods of the disciplines of mechatronics engineering.

6. Analyze situations and problems, define interfaces between different technologies and implement them in different applications
7. Combine theory and practice to analyze engineering issues basing on methodical research methods as well as understand applicable techniques and methods.
8. Ability to work in design, implementation, and integration of engineering applications, such as electronic, mechanical, electromechanical, control and computer systems that contain software and hardware components, including sensors, and controllers.
9. Apply principles of mechanical and electrical engineering to the practice of engineering, robotics, mechatronics, and related industries.
10. Be able to take responsibility in industrial and public projects in the field of industrial manufacturing, research, and development.

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The following **curriculum** is presented:

FIRST YEAR I. SEMESTER

	CODE	COURSE NAME	ECTS	HOURS	Prerequisites
1.	ENGL 1101	English 1	5	3	NONE
2.	MECH 1101	Introductory project	2	3	NONE
3.	PHYS 1101	Applied physics	5	4	NONE
4.	COMP 1101	Fundamentals of programming 1	6	5	NONE
5.	MATH 1101	Engineering mathematics 1	5	4	NONE
6.	MECH 1102	Engineering mechanics 1	4	4	NONE
7.	EENG 1101	Electrical Engineering 1	5	4	NONE
	TOTAL SEMESTER CREDITS/ECTS		**32**		

FIRST YEAR II. SEMESTER

	CODE	COURSE NAME	ECTS	HOURS	Prerequisites
1.	GERM 1201	German 1	5	3	NONE
2.	ENGL 1201	English 2	5	3	ENGL 1101
3.	MATH 1201	Engineering mathematics 2	5	4	MATH 1101
4.	MECH 1201	Engineering mechanics 2	4	4	MECH 1101
5.	EENG 1201	Electrical Engineering 2	5	4	EENG 1101
6.	COMP 1201	Fundamentals of programming 2	6	5	COMP 1101
7.	TECH 1201	Electronics	5	4	NONE
	TOTAL SEMESTER CREDITS/ECTS		**35**		

SECOND YEAR III. SEMESTER

	CODE	COURSE NAME	ECTS	HOURS	Prerequisites
1.	LANG 2101	Azerbaijan Language	2	3	NONE
2.	HIST 2101	Azerbaijan History	2	3	NONE
3.	GERM 2101	German 2	5	3	GERM 1201
4.	TECH 2101	Electric drives and power electronics	6	4	EENG 1201
5.	ENG 2101	Control engineering 1	6	4	MATH 1201
6.	TECH 2102	Digital systems	7	5	EENG 1201
7.	ENGL 2101	Technical English 1	6	3	ENGL 1201
	TOTAL SEMESTER CREDITS/ECTS		**34**		

SECOND YEAR IV. SEMESTER

	CODE	COURSE NAME	ECTS	HOURS	Prerequisites
1.	ENGL 2201	Technical English 2	6	3	ENGL 2101
2.	MECH 2201	Mechatronic components	6	5	NONE
3.	TECH 2201	Digital signal processing	6	4	ENG 2101
4.	TECH 2202	Microcomputer technology	7	5	TECH 2102
5.	ENG 2201	Control engineering 2	6	4	ENG 2101
	TOTAL SEMESTER CREDITS/ECTS		**31**		

THİRD YEAR V. SEMESTER

	CODE	COURSE NAME	ECTS	HOURS	Prerequisites
1.	COMP 3101	Modelling and simulation of dynamic systems	6	5	MATH 1201
2.	MECH 3101	Construction	6	4	MECH 1201

3.	MECH 3102	Theory of strength and materials	6	5	NONE
4.	TECH 3101	Manufacturing and service systems design project	7	5	MECH 1201
5.	TECH 3102	Production technology and processes	6	5	MECH 1201
	TOTAL SEMESTER CREDITS/ECTS		**31**		

THIRD YEAR VI. SEMESTER

	CODE	COURSE NAME	ECTS	HOURS	Prerequisites
1.	TECH 3201	Flexible Manufacturing Systems (CAD/CAM)	6	4	COMP 3101
2.	TECH 3202	Industrial image processing	6	4	MATH 1201
3.	TECH 3203	Automation technology	7	5	COMP 3101
4.	BUS 3201	Fundamentals of business administration and entrepreneurship	5	4	NONE
5.		Elective	4	3	
	TOTAL SEMESTER CREDITS/ECTS		**28**		

FORTH YEAR VII. SEMESTER

	CODE	COURSE NAME	ECTS	HOURS	Prerequisites
1.	TECH 4101	Robot electronics	6	4	EENG 1201
2.	MENG 4101	Robotics	6	5	NONE
3.	TECH 4102	Digital factory technologies	7	5	NONE
4.		Elective	4	3	
5.		Elective	4	3	
	TOTAL SEMESTER CREDITS/ECTS		**27**		

FORTH YEAR VIII. SEMESTER

	CODE	COURSE NAME	ECTS	HOURS	Prerequisites
1.		Practice	18		
2.		Bachelor Thesis including its defense	12		
	TOTAL SEMESTER CREDITS/ECTS		**30**		

TOTAL ECTS CREDITS : 248

ELECTIVE COURSES

	CODE	COURSE NAME	ECTS	HOURS	Prerequisites
1.	EENG 4103	Signal and Systems	4	3	MATH 1201
2.	MENG 4102	Fundamentals of Thermodynamics	4	3	PHYS 1101
3.	TECH 4102	Quality Engineering	4	3	MATH 1201
4.	MATH 3102	Probability and Statistical Methods	4	3	MATH 1201
5.	TECH 4104	High Voltage Techniques	4	3	EENG 1201
6.	TECH 4105	Digital Integrated Circuit Design	4	3	MATH 1201
7.	TECH 4106	Power System Analysis	4	3	MATH 1201
8.	TECH 4107	Information Theory	4	3	MATH 1201
9.	TECH 4108	Microwave Theory and Design	4	3	EENG 1201
10.	MATH 4109	Fuzzy Logic and control systems	4	3	MATH 1201
11.	MATH 4110	Introduction to Natural Language Processing	4	3	MATH 1201