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6B05204 METEOROLOGY

- BACHELOR -

AT THE AL-FARABI KAZAKH NATIONAL UNIVERSITY

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6B05205 GEOGRAPHY

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7M05203 GEOGRAPHY

- MASTER -

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7M05207 METEOROLOGY

- MASTER -

AT THE AL-FARABI KAZAKH NATIONAL UNIVERSITY

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8D05203 HYDROLOGY

- PHD -

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8D05204 METEOROLOGY

- PHD -

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8D07301 GEODESY

- PHD-

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6B05402 MATHEMATICS

- BACHELOR -

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7M05402 MATHEMATICS

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BAYREUTH, 5 JUNE 2025

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8D05401 MATHEMATICS

- PHD -

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BAYREUTH, 5 JUNE 2025

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8D06104 MATHEMATICAL AND COMPUTER MODELLING

- PHD -

AT THE AL-FARABI KAZAKH NATIONAL UNIVERSITY

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BAYREUTH, 5 JUNE 2025

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7M01505 GEOGRAPHY (PEDAGOGICAL)

- MASTER -

AT THE AL-FARABI KAZAKH NATIONAL UNIVERSITY

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6B07302 GEOINFORMATICS

- BACHELOR -

AT THE AL-FARABI KAZAKH NATIONAL UNIVERSITY

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BAYREUTH, 5 JUNE 2025

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7M07302 GEOINFORMATICS

- MASTER -

AT THE AL-FARABI KAZAKH NATIONAL UNIVERSITY

THE ACCREDITATION IS VALID UNTIL 30TH OF SEPTEMBER 2031.

BAYREUTH, 5 JUNE 2025

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6B07110 ROBOTIC SYSTEMS

- BACHELOR -

AT THE AL-FARABI KAZAKH NATIONAL UNIVERSITY

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BAYREUTH, 5 JUNE 2025

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7M07118 ROBOTIC SYSTEMS

- MASTER -

AT THE AL-FARABI KAZAKH NATIONAL UNIVERSITY

THE ACCREDITATION IS VALID UNTIL 30TH OF SEPTEMBER 2031.

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ПРИСУЖДАЕТ СЕРТИФИКАТ КАЧЕСТВА

ПО ОБРАЗОВАТЕЛЬНОЙ ПРОГРАММЕ

6B05204 МЕТЕОРОЛОГИЯ

- БАКАЛАВР -

КАЗАХСКИЙ НАЦИОНАЛЬНЫЙ УНИВЕРСИТЕТ ИМЕНИ АЛЬ-ФАРАБИ

АККРЕДИТАЦИЯ ДЕЙСТВИТЕЛЬНА ДО 30 СЕНТЯБРЯ 2031.

БАЙРОЙТ, 5 ИЮНЯ 2025

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ПРОФЕССОР, ДР. АЛОИС КРИГ
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ПО ОБРАЗОВАТЕЛЬНОЙ ПРОГРАММЕ

6B05205 География

- Бакалавр -

Казахский национальный университет имени аль-Фараби

Аккредитация действительна до 30 Сентября 2031.

Байройт, 5 Июня 2025

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Профессор, Др. Алоис Криг
Председатель Аккредитационной Комиссии

N. 00100398-250129-0

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7M05203 ГЕОГРАФИЯ

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АККРЕДИТАЦИЯ ДЕЙСТВИТЕЛЬНА ДО 30 СЕНТЯБРЯ 2031.

БАЙРОЙТ, 5 ИЮНЯ 2025

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7M05207 МЕТЕОРОЛОГИЯ

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8D05203 Гидрология

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Байройт, 5 Июня 2025

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Байройт, 5 Июня 2025

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6B05402 Математика

- Бакалавр -

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Байройт, 5 Июня 2025

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Байройт, 5 Июня 2025

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Профессор, Др. Алоис Криг
Председатель Аккредитационной Комиссии

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ПО ОБРАЗОВАТЕЛЬНОЙ ПРОГРАММЕ

8D05401 Математика

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Казахский национальный университет имени аль-Фараби

Аккредитация действительна до 30 Сентября 2031.

Байройт, 5 Июня 2025

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Профессор, Др. Алоис Криг
Председатель Аккредитационной Комиссии

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ПО ОБРАЗОВАТЕЛЬНОЙ ПРОГРАММЕ

8D06104 Математическое и компьютерное моделирование

- Докторантура -

Казахский национальный университет имени аль-Фараби

Аккредитация действительна до 30 Сентября 2031.

Байройт, 5 Июня 2025

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Профессор, Др. Алоис Криг
Председатель Аккредитационной Комиссии

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Зарегистрированное общество ACQUIN внесено в Европейский Регистр EQAR (апрель 2009 года) и в Национальный реестр аккредитационных агентств Республики Казахстан (июнь 2012 года)

ИНСТИТУТ АККРЕДИТАЦИИ, СЕРТИФИКАЦИИ
И ОБЕСПЕЧЕНИЯ КАЧЕСТВА

ACQUIN

ПРИСУЖДАЕТ СЕРТИФИКАТ КАЧЕСТВА

ПО ОБРАЗОВАТЕЛЬНОЙ ПРОГРАММЕ

7M01505 ГЕОГРАФИЯ (ПЕДАГОГИЧЕСКАЯ)

- МАГИСТРАТУРА -

КАЗАХСКИЙ НАЦИОНАЛЬНЫЙ УНИВЕРСИТЕТ ИМЕНИ АЛЬ-ФАРАБИ

АККРЕДИТАЦИЯ ДЕЙСТВИТЕЛЬНА ДО 30 СЕНТЯБРЯ 2031.

БАЙРОЙТ, 5 ИЮНЯ 2025

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ПРОФЕССОР, ДР. АЛОИС КРИГ
ПРЕДСЕДАТЕЛЬ АККРЕДИТАЦИОННОЙ КОМИССИИ

N. 00100398-250139-0

Зарегистрированное общество ACQUIN внесено в Европейский Регистр EQAR (апрель 2009 года) и в Национальный реестр аккредитационных агентств Республики Казахстан (июнь 2012 года)

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ПО ОБРАЗОВАТЕЛЬНОЙ ПРОГРАММЕ

6B07302 Геоинформатика

- Бакалавр -

Казахский национальный университет имени аль-Фараби

Аккредитация действительна до 30 Сентября 2031.

Байройт, 5 Июня 2025

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Профессор, Др. Алоис Криг
Председатель Аккредитационной Комиссии

N. 00100398-250140-0

Зарегистрированное общество ACQUIN внесено в Европейский Регистр EQAR (апрель 2009 года) и в Национальный реестр аккредитационных агентств Республики Казахстан (июнь 2012 года)

Институт Аккредитации, Сертификации
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ACQUIN

ПРИСУЖДАЕТ СЕРТИФИКАТ КАЧЕСТВА

ПО ОБРАЗОВАТЕЛЬНОЙ ПРОГРАММЕ

7M07302 Геоинформатика

- Магистратура -

Казахский национальный университет имени аль-Фараби

Аккредитация действительна до 30 Сентября 2031.

Байройт, 5 Июня 2025

.....

Профессор, Др. Алоис Криг
Председатель Аккредитационной Комиссии

N. 00100398-250141-0

Зарегистрированное общество ACQUIN внесено в Европейский Регистр EQAR (апрель 2009 года) и в Национальный реестр аккредитационных агентств Республики Казахстан (июнь 2012 года)

Институт Аккредитации, Сертификации
и Обеспечения Качества

ACQUIN

ПРИСУЖДАЕТ СЕРТИФИКАТ КАЧЕСТВА

ПО ОБРАЗОВАТЕЛЬНОЙ ПРОГРАММЕ

6B07110 Робототехнические системы

- Бакалавриат -

Казахский национальный университет имени аль-Фараби

Аккредитация действительна до 30 Сентября 2031.

Байройт, 5 Июня 2025

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Профессор, Др. Алоис Криг
Председатель Аккредитационной Комиссии

N. 00100398-250142-0

Зарегистрированное общество ACQUIN внесено в Европейский Регистр EQAR (апрель 2009 года) и в Национальный реестр аккредитационных агентств Республики Казахстан (июнь 2012 года)

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ПРИСУЖДАЕТ СЕРТИФИКАТ КАЧЕСТВА

ПО ОБРАЗОВАТЕЛЬНОЙ ПРОГРАММЕ

7M07118 Робототехнические системы

- Магистратура -

Казахский национальный университет имени аль-Фараби

Аккредитация действительна до 30 Сентября 2031.

Байройт, 5 Июня 2025

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Профессор, Др. Алоис Криг
Председатель Аккредитационной Комиссии

N. 00100398-250143-0

Зарегистрированное общество ACQUIN внесено в Европейский Регистр EQAR (апрель 2009 года) и в Национальный реестр аккредитационных агентств Республики Казахстан (июнь 2012 года)

ACQUIN
Akkreditierungs-, Certifizierungs- und Qualitätssicherungs-Institut

Accreditation Report

Programme Accreditation at the

Al-Farabi Kazakh National University
Republic of Kazakhstan

6B05204 Meteorology (Bachelor), 7M05207 Meteorology (Master), 8D05204 Meteorology (PhD), 6B05205 Geography (Bachelor), 7M05203 Geography (Master), 7M01505 Geography (Master ped), 8D05203 Hydrology (PhD), 8D07301 Geodesy (PhD), 6B07302 Geoinformatics (Bachelor), 7M07302 Geoinformatics (Master), 6B05402 Mathematics (Bachelor), 7M05402 Mathematics (Master), 8D05401 Mathematics (PhD), 8D06104 Mathematical and Computer Modelling (PhD), 6B07110 Robotic Systems (Bachelor), 7M07118 Robotic Systems (Master)

I Procedure

Date of contract: 09 October 2023
Date of the submission of self-assessment report: 01 November 2024
Date of site visit: 09 – 10 December 2024
Attendance by ACQUIN office: Maria Zinsmeister, Svitlana Kondratova
Accreditation decision scheduled: 05 June 2025
Peer review experts:

- **Professor Dr. rer. nat. Bodo Ahrens**, Mesoscale Meteorology and Climate, Institute for Atmosphere and Environment, Goethe University Frankfurt, Germany
- **Professor Dr. Jürgen Herget**, Physical Geography at the Department of Geography, University of Bonn, Germany
- **Professor Dr. geogr. Agrita Briede**, Chair of Physical Geography, Department of Geography, Faculty of Science and Technology, University of Latvia, Latvia
- **Assoc. Professor Sezim Mustapayeva**, Geology and Mineral Deposit Exploration, Satbayev University, Kazakhstan
- **Professor Dr.-Ing. Rüdiger Lehmann**, Surveying Engineering, Faculty of Spatial Information, University of Applied Sciences Dresden, Germany
- **Assoc. Professor Elmira Orynbasarova**, Director of the Geomatics Innovation Center, Satbayev University, Kazakhstan

Date of the publication: 18.06.2025

- **Assoc. Professor Lyazzat Atymtayeva**, Information Systems Department at SDU University, Kazakhstan
- **Professor Dr. Ursula Voss**, Applied Mathematics, Stuttgart University of Applied Sciences, Germany
- **Professor Dr. Tobias Kaupp,** Head of the Center for Robotics (CERI), Technical University of Applied Sciences Würzburg-Schweinfurt (THWS), Germany
- **Dr. Karsten Schwalbe**, Development Engineer, "Mathematical Methods and Algorithms" specialist group, FusionSystems GmbH, Chemnitz, Germany
- **Zhuldyz Yerzhanova**, PhD student Geography, Eurasian National University, Kazakhstan

The **Assessment Report** of the peer-review experts is **based on** the self-assessment report of the Higher Education Institution (HEI) and extensive discussions with the HEI management, deans and/or heads of the departments, heads of study programme(s), lecturers, staff representatives, students, and alumni.

The basis of the **Assessment Criteria** is part 1 of the "Standards and Guidelines for Quality Assurance in the European Higher Education Area" (ESG) in the current official version. For PhD study programmes the Salzburg Recommendations are considered additionally. At the same time the national context, particularly the national regulations regarding the establishment of study programmes, are taken into account.

Content

II Introduction

The experts would like to thank the representatives of the HEI as well as students that they have taken part in the discussions and willingly shared information and their views during the site visit. The discussions are valuable not only for the assessment of the institution, but also for a better understanding of the legal and sociocultural context of the local higher education system.

Evaluation basis for the peer-review experts is the self-assessment report of the HEI as well as intensive discussions during the site visit with the HEI management, deans and/or heads of the departments, heads of the study programmes, study programmes coordinators, teachers, lecturers, administrative staff, students, and graduates.

Main objective of the accreditation procedure is to assess the quality of the study programmes and compliance with the "Standards and Guidelines for Quality Assurance in the European Higher Education Area" (ESG). The ESG standards are applied as main assessment criteria in the international accreditation procedure. They are completed with criteria for structured doctoral programmes (Salzburg Recommendation). In addition, the respective country-specific criteria and standards are taken into account.

A group of experts was set up, which ensured that all areas relevant to the accreditation procedure (e.g. legal, structural, social etc. aspects) as well as the ESG, the Salzburg Recommendations, and national criteria were considered. The peer-review experts include professors, representatives of the professional practice and the student representative. A certificate with the ACQUIN seal is awarded upon accreditation of the study programmes.

1 Short profile of HEI

Al-Farabi Kazakh National University, abbreviated as KazNU in the following, is a leading multidisciplinary university located in the Republic of Kazakhstan. Established in 1934, the university is set to celebrate its 90th anniversary in 2024. KazNU is the only university in Kazakhstan and Central Asia to rank among the top 163 universities in the world according to the QS ranking and ranks among the top 29 leading universities in the QS Asia University Ranking.

The university offers a wide range of educational programmes at all levels of education, from bachelor's to doctoral studies. It is focused on integrating scientific activity and the educational process at all levels of higher and postgraduate education. The university has a strong emphasis on internationalization, with over 430 international agreements in place, facilitating mobility and joint programmes with partner universities.

KazNU is committed to transforming into a world-class research university and has a strong focus on scientific and innovative infrastructure. The university has seen significant growth in its contingent of foreign students and has actively engaged foreign professors and scientists from various countries.

The university has 16 faculties and 71 departments, 7 research institutes in natural sciences and technical fields, and 30 research institutes and centers in social and humanitarian fields. KazNU offers 573 educational programmes, including 149 bachelor's, 283 master's, and 141 doctoral programmes, with more than 27,000 students enrolled, including around 3,000 international students from over 50 countries. The university's academic staff exceeds 2,200 people, of whom more than 80% hold degrees of Doctor of Science, Candidate of Science, or PhD.

The Faculty of Geography and Environmental Management at Al-Farabi Kazakh National University was established in 1948. Over its history, the faculty has trained more than 5,000 specialists in various fields of geography, including geographers, meteorologists, hydrologists, ecologists, cartographers, and tourism managers. The faculty is composed of five departments: Cartography and geoinformatics, Geography, land management and cadastre, Recreational geography and tourism, Meteorology and Hydrology, UNESCO for Sustainable Development.

The Faculty of Mechanics and Mathematics of the Al-Farabi Kazakh National University was founded in 1934 and was the first Faculty of Physics and Mathematics in Kazakhstan. This historical mission is relevant for the faculty today. The faculty remained one of the leading centers of scientific research and training of personnel in mathematics, mechanics and information technology in the country. The faculty is constantly developing: the number of research programmes is increasing, new courses are being created, and the material base of the faculty is expanding.

2 General information on the study programmes

6B05204 Meteorology (Bachelor)

Location	NJSC «Al-Farabi Kazakh National University», Republic of Kazakhstan, 050040, Almaty, al-Farabi Ave., 71
Date of introduction	2019
Faculty/ department	Faculty of geography and environmental sciences
Standard period of study (semesters)	8
Number of ECTS credits	240
Number of study places	400 – 880
Number of students currently enrolled	113 (1st year 33, 2nd year 27, 3rd year 17, 4th year 36)
Average number of graduates per year	46 (from 2020-2024 academic year)
Target group(s)	Kazakh and international high school graduates
Admission requirements	secondary, technical and vocational, post-secondary education, or higher education
Form of study	Full time
Tuition fee per study year	1,100,000 KZT

7M05207 Meteorology (Master)

Location	NJSC «Al-Farabi Kazakh National University», Republic of Kazakhstan, 050040, Almaty, al-Farabi Ave., 71
Date of introduction	2019
Faculty/ department	Faculty of geography and environmental sciences
Standard period of study (semesters)	4
Number of ECTS credits	120
Number of study places	15-20
Number of students currently enrolled	5 (1st year 1, 2nd year 4)
Average number of graduates per year	10 (from 2020-2024 academic year)

Target group(s)	Kazakh and international Bachelor graduates
Admission requirements	based on a competitive process involving comprehensive testing or entrance exams
Form of study	Full time
Tuition fee per study year	1,400,000 KZT

8D05204 Meteorology (PhD)

Location	NJSC «Al-Farabi Kazakh National University», Republic of Kazakhstan, 050040, Almaty, al-Farabi Ave., 71
Date of introduction	2019
Faculty/ department	Faculty of geography and environmental sciences
Standard period of study (semesters)	6
Number of ECTS credits	180
Number of study places	5-10
Number of students currently enrolled	5 (1st year 0, 2nd year 3, 3rd year 2)
Average number of graduates per year	6 (from 2023-2024 academic year)
Target group(s)	Kazakh and international Master graduates
Admission requirements	based on a competitive process involving comprehensive testing or entrance exams
Form of study	Full time
Tuition fee per study year	2,500,000 KZT

6B05205 Geography (Bachelor)

Location	NJSC «Al-Farabi Kazakh National University», Republic of Kazakhstan, 050040, Almaty, al-Farabi Ave., 71
Date of introduction	2019
Faculty/ department	Faculty of geography and environmental sciences
Standard period of study (semesters)	8

Number of ECTS credits	240
Number of study places	300 – 400
Number of students currently enrolled	273 (1st year 58, 2nd year 103, 3rd year 49, 4th year 63)
Average number of graduates per year	53 (from 2020-2024 academic year)
Target group(s)	Kazakh and international high school graduates
Admission requirements	secondary, technical and vocational, post-secondary education, or higher education
Form of study	Full time
Tuition fee per study year	1,100,000 KZT

7M05203 Geography (Master)

Location	NJSC «Al-Farabi Kazakh National University», Republic of Kazakhstan, 050040, Almaty, al-Farabi Ave., 71
Date of introduction	2019
Faculty/ department	Faculty of geography and environmental sciences
Standard period of study (semesters)	4
Number of ECTS credits	120
Number of study places	80-100
Number of students currently enrolled	34 (1st year 11, 2nd year 23)
Average number of graduates per year	13 (from 2020-2024 academic year)
Target group(s)	Kazakh and international Bachelor graduates
Admission requirements	based on a competitive process involving comprehensive testing or entrance exams
Form of study	Full time
Tuition fee per study year	1,400,000 KZT

7M01505 Geography (Master ped)

Location	NJSC «Al-Farabi Kazakh National University», Republic of Kazakhstan, 050040, Almaty, al-Farabi Ave., 71
Date of introduction	2019
Faculty/ department	Faculty of geography and environmental sciences
Standard period of study (semesters)	4
Number of ECTS credits	120
Number of study places	100
Number of students currently enrolled	22 (1st year 4, 2nd year 18)
Average number of graduates per year	14 (from 2021-2024 academic year)
Target group(s)	Kazakh and international Bachelor graduates
Admission requirements	based on a competitive process involving comprehensive testing or entrance exams
Form of study	Full time
Tuition fee per study year	1,400,000 KZT

8D05203 Hydrology (PhD)

Location	NJSC «Al-Farabi Kazakh National University», Republic of Kazakhstan, 050040, Almaty, al-Farabi Ave., 71
Date of introduction	2019
Faculty/ department	Faculty of geography and environmental sciences
Standard period of study (semesters)	6
Number of ECTS credits	180
Number of study places	10-15
Number of students currently enrolled	11 (1st year 4, 2nd year 3, 3rd year 4)
Average number of graduates per year	6 (from 2020-2024 academic year)
Target group(s)	Kazakh and international Master graduates

Admission requirements	based on a competitive process involving comprehensive testing or entrance exams
Form of study	Full time
Tuition fee per study year	2,500,000 KZT

8D07301 Geodesy (PhD)

Location	NJSC «Al-Farabi Kazakh National University», Republic of Kazakhstan, 050040, Almaty, al-Farabi Ave., 71
Date of introduction	2019
Faculty/ department	Faculty of geography and environmental sciences
Standard period of study (semesters)	6
Number of ECTS credits	180
Number of study places	7
Number of students currently enrolled	4 (1st year 2, 2nd year 2, 3rd year 0)
Average number of graduates per year	3 (from 2020-2024 academic year)
Target group(s)	Kazakh and international Master graduates
Admission requirements	based on a competitive process involving comprehensive testing or entrance exams
Form of study	Full time
Tuition fee per study year	2,500,000 KZT

6B07302 Geoinformatics (Bachelor)

Location	NJSC «Al-Farabi Kazakh National University», Republic of Kazakhstan, 050040, Almaty, al-Farabi Ave., 71
Date of introduction	2019
Faculty/ department	Faculty of geography and environmental sciences
Standard period of study (semesters)	8
Number of ECTS credits	240

Number of study places	30 – 40
Number of students currently enrolled	88 (1st year 22, 2nd year 17, 3rd year 9, 4th year 40)
Average number of graduates per year	7 (from 2020-2024 academic year)
Target group(s)	Kazakh and international high school graduates
Admission requirements	secondary, technical and vocational, post-secondary education, or higher education
Form of study	Full time
Tuition fee per study year	1,100,000 KZT

7M07302 Geoinformatics (Master)

Location	NJSC «Al-Farabi Kazakh National University», Republic of Kazakhstan, 050040, Almaty, al-Farabi Ave., 71
Date of introduction	2019
Faculty/ department	Faculty of geography and environmental sciences
Standard period of study (semesters)	4
Number of ECTS credits	120
Number of study places	10-15
Number of students currently enrolled	13 (1st year 7, 2nd year 6)
Average number of graduates per year	9 (from 2020-2024 academic year)
Target group(s)	Kazakh and international Bachelor graduates
Admission requirements	based on a competitive process involving comprehensive testing or entrance exams
Form of study	Full time
Tuition fee per study year	1,400,000 KZT

6B05402 Mathematics (Bachelor)

Location	NJSC «Al-Farabi Kazakh National University», Republic of Kazakhstan, 050040, Almaty, al-Farabi Ave., 71
Date of introduction	2019
Faculty/ department	Faculty of Mechanics and Mathematics
Standard period of study (semesters)	8
Number of ECTS credits	240
Number of study places	950 – 1000
Number of students currently enrolled	663 (1st year 149, 2nd year 148, 3rd year 195, 4th year 171)
Average number of graduates per year	110 (from 2020-2024 academic year)
Target group(s)	Kazakh and international high school graduates
Admission requirements	secondary, technical and vocational, post-secondary education, or higher education
Form of study	Full time
Tuition fee per study year	1,100,000 KZT

7M05402 Mathematics (Master)

Location	NJSC «Al-Farabi Kazakh National University», Republic of Kazakhstan, 050040, Almaty, al-Farabi Ave., 71
Date of introduction	2019
Faculty/ department	Faculty of Mechanics and Mathematics
Standard period of study (semesters)	4
Number of ECTS credits	120
Number of study places	190 – 200
Number of students currently enrolled	25 (1st year 8, 2nd year 17)
Average number of graduates per year	25 (from 2020-2024 academic year)
Target group(s)	Kazakh and international Bachelor graduates

Admission requirements	based on a competitive process involving comprehensive testing or entrance exams
Form of study	Full time
Tuition fee per study year	1,400,000 KZT

8D05401 Mathematics (PhD)

Location	NJSC «Al-Farabi Kazakh National University», Republic of Kazakhstan, 050040, Almaty, al-Farabi Ave., 71
Date of introduction	2019
Faculty/ department	Faculty of Mechanics and Mathematics
Standard period of study (semesters)	6
Number of ECTS credits	180
Number of study places	35-40
Number of students currently enrolled	10 (1st year 5, 2nd year 4, 3rd year 1)
Average number of graduates per year	3 (from 2020-2024 academic year)
Target group(s)	Kazakh and international Master graduates
Admission requirements	based on a competitive process involving comprehensive testing or entrance exams
Form of study	Full time
Tuition fee per study year	2,500,000 KZT

8D06104 Mathematical and Computer Modelling (PhD)

Location	NJSC «Al-Farabi Kazakh National University», Republic of Kazakhstan, 050040, Almaty, al-Farabi Ave., 71
Date of introduction	2019
Faculty/ department	Faculty of Mechanics and Mathematics
Standard period of study (semesters)	6
Number of ECTS credits	180
Number of study places	5
Number of students currently enrolled	7 (1st year 2, 2nd year 1, 3rd year 4)

Average number of graduates per year	1 (from 2020-2024 academic year)
Target group(s)	Kazakh and international Master graduates
Admission requirements	based on a competitive process involving comprehensive testing or entrance exams
Form of study	Full time
Tuition fee per study year	2,500,000 KZT

6B07110 Robotic Systems (Bachelor)

Location	NJSC «Al-Farabi Kazakh National University», Republic of Kazakhstan, 050040, Almaty, al-Farabi Ave., 71
Date of introduction	2019
Faculty/ department	Faculty of Mechanics and Mathematics
Standard period of study (semesters)	8
Number of ECTS credits	240
Number of study places	800 – 1000
Number of students currently enrolled	68 (1st year 8, 2nd year 27, 3rd year 6, 4th year 27)
Average number of graduates per year	2 (from 2020-2024 academic year)
Target group(s)	Kazakh and international high school graduates
Admission requirements	secondary, technical and vocational, post-secondary education, or higher education
Form of study	Full time
Tuition fee per study year	1,100,000 KZT

7M07118 Robotic Systems (Master)

Location	NJSC «Al-Farabi Kazakh National University», Republic of Kazakhstan, 050040, Almaty, al-Farabi Ave., 71
Date of introduction	2019
Faculty/ department	Faculty of Mechanics and Mathematics
Standard period of study (semesters)	4
Number of ECTS credits	120
Number of study places	80 – 100
Number of students currently enrolled	19 (1st year 8, 2nd year 11)
Average number of graduates per year	3 (from 2021-2024 academic year)
Target group(s)	Kazakh and international Bachelor graduates
Admission requirements	based on a competitive process involving comprehensive testing or entrance exams
Form of study	Full time
Tuition fee per study year	1,400,000 KZT

III Implementation and assessment of the criteria

1 ESG Standard 1.1: Policy for quality assurance

Institutions should have a policy for quality assurance that is made public and forms part of their strategic management. Internal stakeholders should develop and implement this policy through appropriate structures and processes, while involving external stakeholders.

1.1 Implementation

The Quality Assurance Policy defines the basic concepts, approaches, tasks, procedures and criteria for ensuring the quality of teaching and learning at KazNU. It is carried out according to the following guidelines at the university: the Academic Policy, the Regulations on the procedure for the development and approval of educational programmes, the Academic Integrity Policy, the Policy for assessing learning outcomes and other documents, and the Development programme of the NJSC “al-Farabi Kazakh National University” for 2022-2026.

According to the university, for the effective management, a quality management system (QMS) is operating, which was developed on the basis of international standards ISO 9001. It has a certificate of compliance with the requirements of ISO 9001:2015, which was recertified in 2021 by the certification association Russian Register. Within the framework of the QMS, the processes of educational, research, innovation, social, educational activities are regulated by documented procedures, which include the Quality Assurance Policy. To achieve the goals and vision of the university, the policy and documented procedures have an official status and are posted on the portal of the university.

The university has a published quality assurance policy reflecting the institutional vision and strategy that is part of its strategic management made available on the official website. It corresponds to the main goals and objectives of the university, includes a commitment to meet requirements and continually improve quality performance and it creates the basis for setting and analysing quality goals. The university reports that it is communicated to internal and external stakeholders as well as systematically analysed and improved.

The implementation of the policy in the field of quality assurance of the university is aimed at ensuring the high qualification of graduates and their competitiveness, as well as improving the quality of education and research activities and meeting the students’ requirements. The implementation is ensured by the following components:

1. Planning activities for the provision of educational services
2. Monitoring of scientific research

3. Internal evaluation of the effectiveness of the Educational Programme (EP) and scientific research

4. External evaluation of the effectiveness of the EP and scientific research.

The main provisions of the Policy are detailed in the Academic Policy of the University, the Rules of academic integrity, the Internal quality assurance standards, the Indicative plans of faculties and departments, and other regulating documents. The internal quality assurance policy of the university focuses on the two dimensions quality of the educational process and quality of teaching.

The university policy in the field of quality assurance complies with international approaches and is based on the 'Standards and Guidelines for Quality Assurance in the European Higher Education Area' (ESG). The university emphasizes the involvement of the administrative and teaching staff and learners to a successful quality culture.

All stakeholders are informed about the results of the implementation of the quality assurance policy. There is access to the University Development Strategy, Quality Assurance Policy, Academic Policy, which are posted on the websites of the university, faculty and department and it is available to all university members.

Information resources for external and internal stakeholders include the newspaper "Kazakh University", which allows to familiarize stakeholders and the general public with scientific and cultural achievements. Feedback from stakeholders is carried out through the rector's blog and constant monitoring of the educational environment.

Students are informed through the association of student organizations. The Committee of Youth Organizations is part of the structural unit of the university and works with youth organizations.

1.2 Assessment

The experts confirm that Al-Farabi KazNU follows its strategic goals and has adopted key regulatory documents that define its quality culture policy. The formal policy for Quality Assurance of the KazNU is well designed and publicly available. The Quality Management System and its processes, developed on the basis of international standards, forms the core of the internal quality assurance system. This includes resource and process management, which are continuously observed, analyzed, and improved according to the needs by review boards on all relevant levels. According to the expert panel, the defined processes are well-suited to ensure a high quality at all levels. All relevant stakeholders (students, faculty, staff, and university leadership) are included in the constantly evolving quality assurance. As described in other sections external stakeholders like national companies are included in the quality assurance

process, too. The high ranking of the KazNU in national and international rankings indicates the effectiveness of its quality assurance processes as well. The university management ensures the availability of resources necessary for solving tasks and achieving university goals. These resources include those required for the operation and improvement of the management system and meeting the needs of educational service consumers. As described in section 1.9 and 1.10 the study programmes of KazNU are evaluated internally and externally in an effective way. The internal quality assurance system is formalized and documented. The university's activities are transparent and accessible to the public. The Academic Integrity Policy ensure the promotion of equal opportunities.

The quality assurance process for the PhD programmes is similarly structured. The university has established a comprehensive system for monitoring and enhancing the quality of education and research, ensuring that all doctoral students receive rigorous academic training and support. This system includes internal and external evaluations, regular student feedback, and adherence to both national and international academic standards. The experts found the processes embedded in the different levels of decision making and in the programme development.

KazNU implemented a system for ensuring quality and accountability in its doctoral programmes through these regular and repeated feedback and evaluation mechanisms, demonstrating the student centeredness of the educational programmes. The survey results from the Faculty of Geography and Environmental Sciences and Faculty of Mechanics and Mathematics departments indicate high levels of satisfaction among PhD students. The 2024 Student Satisfaction Survey provided insights into the needs of PhD students. For instance, the Faculty of Geography and Environmental Sciences showed particularly strong results in library resources and educational programme quality. The experts take these results, among others, as indicators of a high level of academic support and resource availability. In the expert's point of view, KazNU demonstrates a strong commitment to ensuring transparency and accountability also in its doctoral programmes.

The expert panel positively assesses the doctoral students' opportunities that rise from cooperations with national industry partners like KazAtomProm, KazTransOil, KazMunayGas, and KazEcology and international partners (e.g. Samsung, Hewlett-Packard, Cisco). Further joint projects with intersectoral collaborators like UNESCO or the Center for Remote Sensing enrich the learning path of doctoral students.

1.3 Conclusion

The criterion is **fulfilled.**

2 ESG Standard 1.2: Design and approval of programmes

Institutions should have processes for the design and approval of their programmes. The programmes should be designed so that they meet the objectives set for them, including the intended learning outcomes. The qualification resulting from a programme should be clearly specified and communicated, and refer to the correct level of the national qualifications framework for higher education and, consequently, to the Framework for Qualifications of the European Higher Education Area.

2.1 Implementation

An Academic Committee develops the educational programme (EP), which is formed in the areas of training of higher and postgraduate education. The Academic Committee consists of academic staff, employers and students.

One of the principles of developing educational programmes at the University is the modular structure. The curriculum of the University's educational programmes is developed within the framework of a competency-based model of specialist training and includes general mandatory modules, mandatory modules in the specialty and elective modules for a specific specialization.

Work programmes are mandatorily developed for all courses, while internship and research programmes are created for practical training and scientific research, respectively. These programmes define the content, sequence, forms, and methods for mastering academic disciplines, internships, and scientific research, as well as specify the set of competencies to be acquired. The curriculum for each level of study includes mandatory subjects and elective courses, as well as the distribution of study time between lectures, practical classes and independent work. The educational programme includes possibilities for academic mobility.

A bachelor's degree student must complete 240 ECTS, with a regular study period of 4 years. The regular study period of the master's degree programme is 2 years and comprises of 120 ECTS-points. The content of the EP of the master's programme consists of four parts: theoretical training, including the study of cycles of basic and major disciplines, practical training of graduates and research work, including the implementation of a master's thesis or master's project and the final attestation.

Doctoral students must complete 180 ECTS with a share of 123 ECTS dedicated to their research work. The regular study period is 3 years and the EP further comprises theoretical training, including the study of cycles of basic and major disciplines, practical training of graduates and the final attestation. Each PhD student has two supervisors, domestic and foreign, which implies a mandatory foreign scientific internship to work with the supervisor and collect materials that are not available on domestic resource bases.

The academic workload for students at the University is measured in credits. The workload of one Kazakh academic credit (30 academic hours) corresponds to 1 ECTS credit.

6B05204 Meteorology (Bachelor), 7M05207 Meteorology (Master), 8D05204 Meteorology (PhD)

The meteorological programmes are offered and coordinated at the Department of Meteorology and Hydrology of Al-Farabi KazNU. It is the only University to study and train in meteorology at BSc, MSc and PhD level in the Republic of Kazakhstan, and the Department founded in 1960 builds on a long history of teaching experience. The KazNU meteorology students are, therefore, essential to Kazakhstan's national and regional weather and climate services. The Meteorological programmes reflect these learning outcomes together with additional obligatory general education disciplines.

6B05204 Meteorology (Bachelor)

The Meteorology (Bachelor) educational programme is designed to train highly qualified specialists with fundamental theoretical knowledge and practical skills in the field of meteorology.

The mandatory modules of the programme include: Atmospheric physics, Physics and Mathematics, Clouds and precipitation, Theoretical and applied meteorology, Atmospheric sounding, Information presentation methods, Climate and its visualization, Applied meteorology and Forecasts of different lead times.

Physical meteorology is covered by the module Atmospheric Physics with courses in physical meteorology and methods of meteorological measurements. Dynamic meteorology and weather systems is covered by the module Theoretical and Applied Meteorology with courses in dynamical meteorology and synoptic meteorology. Climate science is covered in the university component module Climate and its Visualization. The module Physics and Mathematics consists of two courses with a workload of 5 ECTS each: physics and linear algebra. Additional education in mathematics is offered in a course on statistical methods in meteorology (module Climate and its Visualization) and in elective components. Numerical methods and programming courses are offered in the elective component. Additional courses and trainings are offered as mandatory or elective components. These courses include classes in agrometeorology, remote sensing, aviation meteorology and forecasting. These additional courses allow the students in meteorology to follow three specialisations: weather forecasting, aviation meteorology or computational meteorology (including AI/ML methods).

7M05207 Meteorology (Master)

The purpose of the 7M05207 Meteorology (Master) programme lies in the training of competitive meteorologists who are able to interpret and generalize modern problems in the field of

meteorology, who have innovative and creative approaches to carry out scientific research and carry out pedagogical activities.

The mandatory modules of the programme include: Modern problems of meteorology, Monitoring and forecasting of extreme hydrometeorological phenomena, Climate monitoring. The master students research work contains a research seminar, writing the dissertation, a scientific Internship as well as publications in scientific journals and/or materials of scientific and practical conferences.

The M.Sc. programme allows additional training in scientific methods, in statistical methods and global meteorology and climate, but also in computing and modelling or monitoring of the atmosphere. A significant topic in the MSc lies in preparing, researching and writing a scientific MSc dissertation which involves a scientific internship and targets a journal publication.

8D05204 Meteorology (PhD)

The 3-year PhD programme 8D05204 Meteorology (PhD) aims at preparing the PhD students for writing their PhD dissertation. Additionally, the programme offers obligatory and elective courses in scientific methods, courses in alternative/renewable energy, and the climate and ecology of Kazakhstan and specializations. Given the complexity of meteorology and climatology and the fast-developing technologies in modelling and monitoring the atmospheric and climate systems, a high internationalization of the PhD programme is seen as essential at the faculty. Therefore, participation in international conferences, internships, and supervision are part of the PhD programme. A mandatory component is research practice of two semesters at scientific partner organisations.

8D05203 Hydrology (PhD)

The purpose of the educational programme 8D05203 Hydrology (PhD) lies in the training of highly qualified specialists capable of innovation in the field of hydrological science and water recourse, education. The programme is designed practice based on an in-depth study of the theoretical and methodological foundations of hydrological science, as well as the systematic use of knowledge and methodology of related scientific fields and digital technologies. Students should be enabled to create new conceptual knowledge, developing science, presenting in scientific discussions, nationally and internationally. Graduates are aimed to carry out research, management and expert activities in priority areas of hydrological science and practice.

The curriculum of the programme comprises the modules “Scientific-Research tools” and “Flood runoff forecast and transformation of water resources” including the calculation and prediction of spring floods as well as modern GIS and Earth Remote Sensing Technologies. In the elective component, the courses “Nature challenges and anthropogenic transformation of water resources” or “Hydrochemical and toxicological parameters of main transboundary

rivers of Kazakhstan" are studied. Furthermore, students participate in various scientific seminars, write their dissertation, participation in international scientific conferences, publicise their results of the dissertation in scientific journals and absolve a scientific Internship within the Doctoral Student Research section (123 ECTS-Credits).

6B05205 Geography (Bachelor), 7M05203 Geography (Master), 7M01505 Geography (Master ped)

The development of the educational programmes 6B05205 Geography (Bachelor), 7M05203 Geography (Master) included several key stages and was regulated by a number of regulatory documents and standards of higher education. An important factor in the formation of the educational programme is the interaction of the department with employers who are directly involved (e.g. JSC Institute of Geography and Water Safety etc.).

The educational programme aims to qualify participants for developing critical thinking skills, digital literacy and an interdisciplinary approach to geographical issues.

For quality insurance, the educational programme was discussed among the Department of Geography, Land Management and Cadastre and the Academic Council of the Faculty of Geography and Environmental Management and is approved by the Board of the Non-profit joint-stock company "Al-Farabi KazNU" and submitted to the Unified Higher Education Platform.

6B05205 Geography (Bachelor)

The purpose of the 6B05205 Geography (Bachelor) educational programme is to provide high-quality training for competitive, highly skilled specialists who can evaluate and analyze geographical issues, assimilate new knowledge, and generate new insights in the field of geography. Graduates should be able to formulate professional tasks and solve them using suitable modern methods of international standards. The programme aims to prepare qualified professionals capable of performing the functions of a geographer in research institutions, public authorities, and private companies engaged in geographical investigations.

The mandatory modules of the programme include: Fundamentals of the structure of the Earth and the earth's crust, Basic of cartography and soil science, Introduction to Economic Geography and Geomorphology, Fundamentals of Physical Geography, Doctrine of Geosystenis, Physical geography of the world, Basics of biological geography, Economic and social geography of the world, Research methods in economic geography, Scientific Writing Techniques and Economic geography of the world and Kazakhstan.

The study programme 6B05205 Geography (Bachelor) provides three learning paths for a future specialization, starting from the fifth semester.

- The first trajectory "Physical geography and geoecology" targets employment opportunities in various scientific fields and areas related to the study of natural processes, assessment

of the state of the environment, research into the structure, functions and changes of landscapes.

- The second trajectory is "Economic and Social Geography". Students who have studied this trajectory will work in government agencies, think tanks, international organizations, private consulting companies, as well as in scientific and educational institutions.
- The third trajectory is "Geomorphology": Graduates of this trajectory are in demand in geological services, research institutes, environmental organizations and in infrastructure design.

7M05203 Geography (Master)

The purpose of the 7M05203 Geography (Master) educational programme is to train highly qualified specialists with advanced knowledge and skills in geographical sciences, capable of conducting scientific research, analysis, and forecasting. The programme is designed to encourage interdisciplinary research providing approaches to solve global and regional issues. Graduates will develop a deep theoretical understanding of physical, socio-economic geography, and demography, enabling them to critically analyse and synthesize information in both professional and scientific contexts. Graduates of the programme will be prepared for teaching and professional careers in various sectors related to geography and environmental protection. They will also be adept at effectively presenting their work in academic contexts.

The mandatory courses of the programme include the three Modules “Advanced Educational and Research Strategies in Geography”, “Environmental management” and “Human Geography and Geographical research and landscape sustainability”. The educational programme 7M05203 Geography (Master) provides three training trajectories for master's students.

The first trajectory is "Economic Geography" for preparing students to analyze the economic differentiation of regions and to assess the factors of economic growth and social development of territories (e.g. spatial distribution of labour resources, migration flows).

The second trajectory “Physical Geography” and allows graduates to work at the intersection of different scientific fields and effectively interact with other specialists in solving issues of prevention and management of natural risks. This trajectory targets the education of future geographers that can develop and implement innovative methods for forecasting and preventing natural disasters.

The third trajectory is “Demography” and provides students with knowledge to develop effective socio-economic programmes and government strategies. Demographic data play an important role for planning long-term strategies for Kazakhstan’s sustainable development. Thus,

this trajectory aims to prepare competitive specialists who will be able to analyse socio-economic processes and make informed decisions for the development of the country.

7M01505 Geography (Master ped)

The university describes in its self-assessment report, that during the preparation of the educational programme, the Teacher Standard was used. In accordance with the new standard, in 2024, this educational programme was reviewed by the Academic Council No. 1 (pedagogical specialties) for its alignment with the educational goals and learning outcomes, involving the relevant stakeholders. After the approval of the educational programme (decision of the Board of NJSC Al-Farabi KazNU), the educational programme was uploaded to the Unified Higher Education Platform, where it undergoes independent review and approval.

In the programme, the directions physical geography of regions and countries, as well as economic geography form part of the profile, as well as GIS disciplines. Since this is a specialization in the field of pedagogical geography, disciplines on teaching methods are implemented as well. There are the following mandatory modules: Innovations in geographical science and education, Technologies of modern educational programmes, Modern problems of geographical research and Research Practice.

The purpose of the EP is to train highly qualified personnel with a system of fundamental knowledge in pedagogy, psychology and geography. Graduates are aimed to work effectively in the educational field, in the field of geography and pedagogy, perform managerial tasks and apply modern educational technologies.

8D07301 Geodesy (PhD)

When creating the educational programme 8D07301 Geodesy (PhD) for doctoral students in 2016, focus areas were to strengthen the connection between the educational process and the industry in the study field as well as offering a programme meeting international standards.

According to the university, the programme 8D07301 Geodesy (PhD) gives room for creative realisation of the personal potential and doctoral students work independently as well as in joint activities with their supervisors.

The curriculum of the programme includes the modules “Scientific-Research tools”, “Earth remote sensing and visualization”, “Geospatial Data” and “Study of the Earth’s gravitation field and coordinate support”. Furthermore, students participate in various scientific seminars, write their dissertation, participate in international scientific conferences, publicise their results of the dissertation in scientific journals and absolve a scientific Internship within the Doctoral Student Research section (123 ECTS-Credits).

In “Geospatial Data”, doctoral students acquire skills in understanding Big Geospatial Data, geospatial data models and technologies for searching and analysing these data. It is practised

to work with open-source data mining systems to increase the availability of crowdsourced data and private sector participation in geodata. In “Earth's gravitational field and coordinate support” students are determining the parameters of the Earth's gravity field and studying geodynamic processes. The programme focuses on preparing specialists capable of conducting research, teaching, and implementing innovations in geodesy.

6B07302 Geoinformatics (Bachelor), 7M07302 Geoinformatics (Master)

6B07302 Geoinformatics

The purpose of EP 6B07302 - Geoinformatics is qualitative training of specialists in the field of geoinformatics and Earth remote sensing for specialized research institutes, scientific and production organizations and associations, national and regional land committees, state administration bodies and profile ministries.

The mandatory modules of the programme include: Geodesy and cartography, Natural science module, Development of base data for GIS, Designing and compilation map in the GIS programme, Introduction to programming languages and JavaScript, Open GIS software, Digital technology according to remote sensing data, Creating Thematic maps and data processing, Basics of web programming, Laser scanning and GIS software and The use of navigation systems.

In the elective component course “Digital map design and Python programming” students are provided with basic knowledge about cartographic principles and methods for visualizing geospatial data. Students should be enabled to develop the technical skills in the context of developing web applications and geoportals. Further elective component courses within the module “Geoportal applications and Web GIS”, build on the programming knowledge gained to develop students’ cartographic skills. In order to enable the students a career in the field of geoinformatics, the application of theoretical knowledge into practice is implemented.

7M07302 Geoinformatics

The purpose of EP “7M07302 Geoinformatics” is qualitative training of highly qualified personnel of scientific, pedagogical and profile orientation in the field of geoinformatics and remote sensing of the earth for specialized research institutes, universities, scientific and production organizations and associations, national and regional land committees, state administration bodies and profile ministries.

In the master's degree programme in "7M07302-Geoinformatics," the first trajectory is centered on GIS and geospatial analysis. Through courses on spatial data modeling, cartographic design, and statistical analysis of geospatial data, students learn to apply GIS techniques to real-world problems.

The second trajectory, dedicated to GIS programming and geospatial analysis, introduces students to the technical aspects of developing GIS applications. Students learn programming languages such as Python and R to create custom tools and automate data processing tasks.

The third trajectory, which explores GIS programming and geospatial analysis in artificial intelligence, combines geoinformatics with AI techniques. Students study machine learning and data mining methods to analyze geospatial data.

6B05402 Mathematics (Bachelor), 7M05402 Mathematics (Master), 8D05401 Mathematics (PhD)

The consecutive study programmes 6B05402 Mathematics (Bachelor), 7M05402 Mathematics (Master) and 8D05401 Mathematics (PhD) are located at the Department of Mathematics of the Faculty of Mechanics and Mathematics. The offered so-called trajectories, along which students can specialize in the Mathematics programmes, are the following 6:

- Mathematical analysis and theory of functions
- Mathematical logic and algebra
- Theory of probability and mathematical statistics
- Differential equations
- Optimization and optimal control
- Equation of mathematical physics

The forms of teaching in the three degree programmes include lectures, seminars and internal and external practical phases, whereby the proportions change according to the different objectives of the programmes in the undergraduate and graduate areas.

In line with the general goals of KazNU, it is already anchored in the curriculum of the Master and PhD programme that students publish and participate in scientific conferences. Overall, the experts were impressed by the high quality of the Mathematics study programmes.

<u>6B05402 Mathematics (Bachelor)</u>

In accordance with the general objectives of KazNU the aim of the bachelor's degree programme is to train students to become specialists for educational centres and research institutions who are able to solve theoretical and practical problems in mathematics, considering the given quantitative, spatial or other conditions and by relying consistently on mathematical thinking, analysis and logical reasoning, using modern information technologies where appropriate.

The 8-semester bachelor's degree programme is designed as a full-time course in accordance with the national requirements for bachelor's degree programmes. Accordingly, the proportion of modules in the chosen subject in the first two years of study is initially lower (11 ECTS of mathematical subjects of the Basic Cycle in the first semester, 17 ECTS in the second semester, 20 ECTS in the third semester and 16 ECTS in the fourth semester). 56 ECTS in the first two years comprise languages, socio-cultural subjects and physical training. In the third and fourth years of study, the Basic Cycle is continued and supplemented by the Major Cycle. Electives, both in the Basic Cycle and in the Major Cycle, enable students to deepen their knowledge in one of the above-mentioned 6 trajectories. The programme comprises several practical phases in the 2nd, 4th and 6th with different objectives (26 ECTS in total).

7M05402 Mathematics (Master)

The aim of the programme 7M05402 Mathematics (Master) is to train qualified master's degree students competent in solving various professional problems in the field of mathematics with the aim of working as a researcher or teacher of mathematics in higher education in the future. Another goal is to attract international students.

The 4 semester Master programme is designed as a full-time course and has a modular structure. It includes compulsory courses on history and philosophy, psychology, pedagogy and didactics of higher education, including a pedagogical practice. There are compulsory courses in teaching and the organization of academic work and compulsory courses in mathematics.

3 blocks of elective modules allow students to specialize in one of the 6 above-mentioned directions for a total of 30 ECTS credits. Students have to choses courses which belong to the same module.

8D05401 Mathematics (PhD)

The aim of the PhD programme "8D05401 - Mathematics" is the pedagogical, methodological and research-related training of specialists for scientific and pedagogical activities in the system of higher education, postgraduate education and the research sector. PhD students have to teach (a practice period in the first year), publish and participate in conferences.

Within the PhD programme it is mandatory to have international supervisor in addition to the supervisor at KazNU, currently from universities in Russia, Turkey, Belgium, Italy and Portugal. Doctoral students are required to visit their international supervisor for a research stay. In the PhD programme almost all courses are taught in English. Teaching stuff, who teach in English, must provide evidence of their language skills in the form of a certificate.

The 3-year PhD programme is designed as a full-time course and has a modular structure. In addition to the compulsory mathematical courses "Actual problems of modern mathematics"

and “Spectral theory of operators and analytical methods research of differential operators” the curriculum contains two blocks of mathematical electives with 7 and 13 courses respectively. Doctoral students have to select one module from each of these compulsory elective module blocks to specialize in. The study programme is supplemented by a course on Academic writing and Scientific Research Methods.

All facets of academic work (seminars, writing the thesis, research practice, scientific internship, conference participation, publishing) are included in the curriculum and are worth a total of 133 (out of a total of 180) ECTS credits. Gaining teaching experience, e.g. teaching a seminar, is covered by 10 ECTS and anchored in the curriculum.

8D06104 Mathematical and Computer Modelling (PhD)

The programme is aimed at training highly qualified scientific, pedagogical and scientific personnel who are competitive in the domestic and international labour markets. The educational programme is focused on developing in students’ deep knowledge in the field of applied mathematics and modern computer technologies, developing skills in carrying out scientific research, as well as teaching activities at universities and research institutes. The following areas of training are provided:

The module “Module for mathematical modeling of the unsteady processes” aims at enabling to define problems and select solution methods, apply finite-difference methods for approximating solutions to mathematical physics equations, and choose appropriate mathematical models in the form of multidimensional, non-stationary differential equations for physical problems. Students are aimed to learn to classify and select numerical methods for non-stationary physical processes, create numerical solution algorithms, develop programmes for implementation, and analyze results. Additionally, students will apply basic optimization methods to solve inverse problems, perform quantitative analysis of numerical results, and understand algorithms thoroughly.

Module for mathematical modelling in dynamic systems, chemical engineering, nonlinear dynamics of deformable media: In this module, students will develop simulation models using system dynamics and discrete-event modelling, work with visual tools in simulation environments, and conduct independent research in complex system modelling, including Python-based projects. They will set goals for modelling chemical processes, construct deterministic or probabilistic-statistical models grounded in physical and chemical principles, and apply matrix calculus and linear algebra. Students will also gain skills in constructing and analyzing functional graphs, apply differential equations to chemical kinetics, and systematically understand nonlinear dynamics of deformable media. They will assess criteria and assumptions in modelling, develop models of nonlinear media deformation and dynamic stability, analyze and

solve nonlinear problems, conduct comparative analyses, and create comprehensive scientific work.

The educational programme 8D06104 Mathematical and Computer Modelling (PhD) is developed based on the Professional Standard for educators of higher and/or postgraduate education institutions. It is important to note that representatives of foreign universities and partner organizations were involved in creating this educational programme. In line with employer demands, which are primarily research institutes, the goals and learning outcomes of the programme are defined. Research and production internships are conducted at research institutes.

In the PhD programme, research practice bases are provided by organizations. At the end of the practice, students present a report detailing the outcomes of their completed work. All facets of academic work (seminars, writing the thesis, research practice, scientific internship, conference participation, publishing) are included in the curriculum. Gaining teaching experience, e.g. teaching a seminar, is covered by 10 ECTS and anchored in the curriculum.

6B07110 Robotic Systems (Bachelor), 7M07118 Robotic Systems (Master)

The robotic programmes 6B07110 Robotic Systems (Bachelor) and 7M07118 Robotic Systems (Master) are situated within the Faculty of Mechanics and Mathematics. The robotic programmes were created in the context of the Kazakh government programme of “Digital Kazachstan” which was running between 2018 and 2022. One of the aims of the programme was to increase the number of graduates trained in information technologies and artificial intelligence. KazNU took this opportunity to create bachelor’s and master’s programmes in robotics that opened in 2019 and were officially added to the registry administered by the Ministry of Higher Education and Science of the Republic of Kazakhstan. The curriculum was developed with the inspiration and active support of leading universities around the world including from Russia, USA, Asia and Western Europe including Germany. This process ensures that the curriculum meets academic standards in the field. According to the university, engagement with industrial partners for the practical parts of the programmes ensures that industry needs are also met.

Modifications to the programmes include the input from robotics students. They are able to provide feedback via the Univer.Kaznu IT system and review/advisory meetings. The university reports that feedback from visiting partner universities as well as industry partners is incorporated in developments of the curriculum.

<u>6B07110 Robotic systems (Bachelor)</u>

The purpose of the EP 6B07110 Robotic systems is a high-quality training of qualified competitive specialists in the field of robotic systems, with fundamental knowledge in the field of mathematics, natural sciences, engineering, information technology. Graduates are aimed to apply their knowledge to the analysis, design and control of mechanical, electrical and electronic components of mechatronic and robotic systems for educational and research institutions and various automated and robotic productions.

The mandatory modules of the programme include: Mathematics, Physics, Differential Equations, Classical Mechanics, Computer design and electronics, Materials Mechanics, Robots and Robotic Systems Control, Mechanics of Robots and Microprocessor Circuitry, Computer Vision and Artificial Intelligence, Software for Robotic Systems and Digital Design and Embedded Systems.

The 4-year bachelor's degree is organized as follows: the first two years contain

1) general education disciplines that are obligatory components provided by the Kazakh government, and

2) core disciplines from the field of Mathematics, Physics, Mechanical Engineering, Electrical Engineering, and Computer Science.

The curriculum for year 1-2 fulfils the objective of providing a solid base for further studies in the robotics field. Year 2-4 contain more specialized subjects relevant to robotics such as Robotic Systems Control and Computer Vision. The last semester is dedicated to practical components (professional practice) including the opportunity to conduct internships in industry and other research institutions. The curriculum for year 2-4 fulfils the objective of teaching specialist and practical knowledge in the field of robotics. Throughout the bachelor's degree curriculum, electives are provided allowing students to specialize further according to their interests.

7M07118 Robotic Systems (Master)

The purpose of the educational programme 7M07118 Robotic systems lies in the training of highly qualified scientific and pedagogical personnel in the field of robotic systems. Students should develop a deep system knowledge and competencies, be able to independently identify and solve actual scientific problems of design and pursue controls of robotic systems. Furthermore, the programme aims to qualify students for the tasks of biomechanical, in various automated and robotic production processes, in organizations and laboratories of the robotics industry of the Republic of Kazakhstan and international research centers engaged in scientific research in the field of robotics.

The mandatory modules of the programme include: Modern problems of robotics, Industrial robots and Modern problems of control of robotic systems.

The 2-year master's degree is organized as follows: semesters 1-3 mainly contain core and major disciplines, with a smaller component on conducting research. Some of the core subjects teach general knowledge in the context of science (e.g. history and philosophy of science), others contain specialized topics in robotics (e.g. parallel robots). The last semester is dedicated to research with a focus on writing and defending the Master dissertation. Throughout the Master curriculum, electives are provided allowing students to specialize further according to their interests.

2.2 Assessment

6B05204 Meteorology (Bachelor), 7M05207 Meteorology (Master), 8D05204 Meteorology (PhD)

The meteorological programmes are developed and implemented following the Professional Standards "Hydrometeorology and Ecology" and "Guidelines for Application of Standards of Education and Training in Meteorology and Hydrology" of the World Meteorological Organization. Education in meteorology is essential for the main work force in national and regional weather and climate services, including the private sector. In the experts' point of view, given KazNU's status as National University and the national uniqueness of the meteorology programmes from undergraduate to PhD level, the programmes fit very well into KazNU's strategy. Additionally, meteorology is a highly international research field which is very relevant in the solution, for example, of the challenges of climate and biodiversity change or in key applications such as aviation meteorology, extreme weather and climate warning, or renewable energy research.

In the educational programmes, the expected student workload is well-justified and transparent. The experts observed that there is a relatively large number of examinations due to courses with typically 5 ECTS in the 6B05204 Meteorology (Bachelor) curriculum. In the discussions, the experts suggested reducing the number of examinations by combining them into module examinations. However, this had already been tested by the university management and had been discarded at the request of the students. This example confirms the expert's impression of a fruitful and effective interaction of faculty members and students at eye level.

The meteorological courses in the bachelor's degree programme cover the essential topics of a typical curriculum in meteorology and offer interesting additional options within the context of Kazakhstan's meteorology and climate. The number of credits assigned to prerequisites in physics and mathematics could be extended, in accordance also to the WMO guideline (No. 1083) in order to facilitate a research-oriented education in meteorology. The course physics with 5 ECTS only covers topics from classical mechanics, electrodynamics, to atomic and elementary particle physics. Given that meteorology is a physical science, subjects in physics could be increased, as well as linear algebra. Regarding differential and integral calculus or

vector calculus, a course could be introduced to ensure international standards in meteorological study programmes. The work with recent technological facilities at KazNu (e.g. climate and modelling laboratory, the remote sensing hub) and in general new technologies in atmospheric modelling and monitoring would also be enhanced by strengthening physical and mathematical understanding.

As a further general suggestion for future development of the curriculum, the experts advise the university to focus on deepening knowledge in the key areas like mathematics and physics. Here, further enhancing the teaching cooperation with the mathematics and physics departments might be possible and mutually attractive.

Given Kazakhstan's meteorological, environmental, and climate challenges the number of students in meteorology could still be expanded. During the on-site visit the experts learned that when applying to the university, students choose a field of study which they can switch one time in the first year. Meteorology belongs to the field of “Earth Sciences”. In the experts’ perception, this creates two challenges negatively impacting the number of meteorology students: (a) students in the first year opt for an “easier” programme with less physics and mathematics courses, and (b) there is an administrative barrier for students that are strong in natural sciences but hadn’t been admitted to university in the field of “Earth Sciences”. This lack of students in the bachelor’s degree programme passes on to the M.Sc. and PhD programmes in meteorology. Therefore, the experts suggest to the University to improve the permeability in the admission system in favour of meteorology for students with a strong interest in mathematics, physics, chemistry.

Students in the 7M05207Meteorology (Master) and 8D05204 Meteorology (PhD) programmes see plenty of interesting opportunities for research and writing their scientific dissertations. The experts welcome that the Department of Meteorology and Hydrology hosts or is a partner in many interesting laboratories and research centres (e.g., the laboratories on Aerology and Radiometeorology). The experts were demonstrated that this results in a favourable availability in research and teaching staff. Vacant positions are filled by annual competitions. There is also strong cooperation in research and teaching with national research institutes (incl. the National Meteorological Agency) and international Universities.

For future developments in the 8D05204 Meteorology (PhD) programme, it is suggested to discuss offering additional courses in the elective components (e.g., remote sensing perhaps in cooperation with geoinformatics or AI/ML taught by a mathematician) targeting to cover the large diversity of possible PhD research topics. The on-going strategy to invite international lecturers is seen as a very efficient method to connect students with international research and researchers. Given the workload of the PhD programme, especially given the publishing obligations, finishing and defending a PhD within the programme’s time limit of three years is rarely

possible. As publishing is very important for a successful scientific and academic career the experts suggest to the university to maintain the support structure to PhD students especially regarding publishing. Regarding research opportunities, it is recommended to enable easy access to the supercomputer (available from 2025) to the teaching staff and PhD students in Meteorology.

In 2018, the bachelor's degree programme in meteorology was developed in English implying that faculty needs to provide teaching in three languages on all levels. This is attractive for international students, but also a challenge for the available teaching resources. If courses are offered in different languages, the classes get even smaller and the teaching burden increases. At the same time, not yet all courses at Master and PhD levels are offered in English. National and regional administrations need meteorologists who are fluent in talking weather and climate in national languages. However, international research is mainly conducted in English. Therefore, it is suggested to consider sticking mainly to Kazakh and Russian at the bachelor level with some advanced classes in English for language training. Teaching in English consequently at the Master and PhD level could then lift barriers for international students.

The experts acknowledge the historically grown expertise in research and teaching at the Department of Meteorology and Hydrology. The programmes are well implemented and supported by staff as well as by the infrastructure. As elaborated above, in future updates to the curricula, a strengthening of student skills in physics and mathematics is suggested as it is crucial for research in a fast-changing natural and societal environment.

8D05203 Hydrology (PhD)

The programme 8D05203 Hydrology (PhD) has an emphasis on mastering contemporary methods of analysis and synthesis. It prepares students to integrate knowledge into professional practice and adapt it to evolving contexts. A core component of the programme is also the cultivation of pedagogical skills, preparing future educators who can effectively teach across various educational levels. According to the experts, the PhD programme in Hydrology is designed appropriately to achieve the desired learning outcomes. KazNU implements the doctoral programme in accordance with the requirements of the Ministry of Education of the Republic of Kazakhstan on qualification objectives, mandatory content and quality management specifications, while following to international standards in the development of study programmes.

The programme scientific schools and research areas include the relevant areas such as: impact of urbanized areas on elements of the hydrological regime, modelling of hydrological pro-

cesses, hydrological mapping using GIS technology, satellite monitoring of water bodies, assessment and forecasting of quantitative flood and flash flood hazards, calculation of water-erosion processes, and water resource management.

Overall, the structure of the PhD programme is clear and transparent, coherent in content and clearly presented. The content of the module handbooks is described in detail, including the content. The experts assess the literature proposed as adequate. The recommended textbooks are mainly in English, the year of publication of the textbooks is related to the last 20 years. Some shortcomings in the module handbook have been noticed, for example, the description of the final attestation should be revised.

The faculty demonstrates a well-equipped infrastructure, including laboratories such as the Scientific Center for Sustainable Development and Rational Nature Management, the Kazakhstan-China Joint Laboratory for Remote Sensing Technology and Applications, and the Educational Hydrological Laboratory Center. This center includes a teaching laboratory for hydrometry, a hydrological information archiving center, a GIS technology room, various laboratories, and a Distance Learning Center. The experts find that the infrastructure provided excellently supports the PhD students in accomplishing their research projects. In general, the impressions on the study programme are very positive and the strong point is dedicated academic staff and motivated students. The experts' indications for future developments include continued investments in infrastructure, an even more intensive use of distance learning technologies and the promotion of internationalisation.

6B05205 Geography (Bachelor), 7M05203 Geography (Master), 7M01505 Geography (Master ped)

The educational programme 6B05205 Geography (Bachelor) is a well-balanced core programme within the framework of the senso stricto nine geography related programmes of the faculty on the bachelor level. The possibility to choose among three alternative focus areas in the two last semesters of the programme accommodates individual interests of the students while a fundamental base of knowledge is already established before. According to the documentation and interviews with students the experts assess the programme workload as adequate and transparent. The expert panel considers the purposes of higher education in accordance with international to have been met, as it has found a sufficiently balanced combination of different teaching and reflecting approaches. Based on the discussion with students, the experts would like to recommend that teaching should be enriched by field exercises and practical elements. Another similar recommendation is to extend field experience. Both recommendations aim to raise the profile of the practical part of the study programme. Furthermore,

according to the experts, these measures could motivate students even more for the theoretical classes which some of the students mentioned as challenging – and thus enrich the entire educational pathway.

The resulting career opportunities were found to be appropriate for a bachelor's degree programme and take into account both academic and applied perspectives. The experts would like to positively assess that there are consultancy activities carried out by external stakeholders. Trends and shifted foci are rapidly identified and implemented via regular study programme updates. For instance, the recently opened Remote Sensing Center of the Engineering and High-Tech Cluster provides up to date perspectives of remarkable high technological standard and it is recommended to include it into the bachelor programme's courses on an adequate level.

The educational programme 7M05203 Geography (Master) is a well-balanced advanced programme within the framework of the seventeen master level programmes that are geography related. The possibility to choose among three alternative focus areas accommodates individual interests of the students while a fundamental base of knowledge is already established during the initial bachelor programme. According to the documentation and interviews with students, the experts assess the workload as adequate and transparent. The programme consists of an adequately balanced combination of different teaching and reflecting approaches on master level. Based on the discussion with students, the experts would like to recommend increasing field exercises and practical elements in teaching. The expert panel recommends an extension of these elements to illustrate relevant phenomena by personal observation and experience. The experts see benefits in extended field experiences as they help strengthening students' autonomous work skills and prepare them for entry into the labour market.

The resulting career opportunities of the 7M05203 Geography Master are adequate and consider both scientific and applied perspectives. A positive aspect in the context of the professional perspective for graduates in applied geography lies in the established consultation by external stakeholders during programme development processes. The recently opened Remote Sensing Center of the Engineering and High-Tech Cluster provides up to date perspectives of remarkable high technological standard. According to the experts, the Center offers an enormous learning opportunity for the 7M05203 Geography Master students. Therefore, it is recommended to increase the intensity of its use in teaching especially in this educational programme, aiming to adequately motivate and stimulate the students in their learning path. Furthermore, it is recommended to implement the use of large language models in research as a topic to the courses of the EP, for instance in research methods.

The educational programme 7M01505 Geography (Master ped) offers two dimensions to its students. On the one hand, similar to the 7M05203 Geography Master it equips students with

key knowledge in geographical disciplines and the corresponding methods in geoinformatics. On the other hand, students are trained to become pedagogical personnel for teaching activities at universities, colleges, as well as researchers in Geography education. Graduates are enabled to implement recent approaches in education and are prepared to work in scientific and pedagogical positions in educational institutions like universities and colleges.

The workload of the programme 7M01505 Geography (Master ped) consists of theoretical training, research work, dissertation writing, and also includes pedagogical and research practice as well as a scientific internship. During the onsite discussions, the experts had the opportunity to meet highly motivated students of the pedagogical master programme. The experts assess the programme workload as adequate and could convince themselves of the well-balanced combination of different teaching approaches. Students of the pedagogical Geography Master combine their master thesis with teaching practice which is enabling a practice-oriented approach and contributing to the development of pedagogical skills. This practice-orientation of the master thesis is positively assessed by the experts as it strengthens the teaching skills and facilitates the transition to the labour market.

8D07301 Geodesy (PhD)

In the development of the programme 8D07301 Geodesy (PhD) stakeholders are actively involved, including representatives of government agencies, private companies, and research organizations. Students contribute through feedback gathered via surveys, questionnaires, and meetings, enabling the programme to address both labour market needs and student expectations. Key learning outcomes include the ability to analyze geospatial data, work with Earth gravitational field models, apply modern geodetic technologies, and utilize interdisciplinary approaches, including artificial intelligence and big data. By combining fundamental knowledge with practical skills, the programme ensures that its graduates remain competitive in the labour market. The programme 8D07301 Geodesy (PhD) convinces and is well-designed for preparing highly qualified, innovative specialists.

The programme exhibits numerous strengths that contribute to its high quality and relevance. A major advantage for the experts lies in the access to state-of-the-art laboratories equipped with modern geodetic instruments, enabling them to acquire hands-on experience in the latest technologies. The ability to work in the Center for Remote Sensing further enhances their technical expertise and provides opportunities for cutting-edge research in geospatial sciences.

The programme's alignment with the university's mission and its emphasis on addressing the needs of the domestic and international labour market ensure its ongoing relevance. The growing demand for geodetic specialists in Kazakhstan, particularly in the context of digitalization, underscores the importance of the programme.

Active participation of external stakeholders, including government representatives and industry leaders, strengthens the programme's focus on practical application and innovation. Constructive feedback from students ensures that the programme remains responsive to their educational and professional needs.

Practical training opportunities are emphasised through internships at leading organizations, such as JSC "Kazgeocosmos" and the Institute of Geography and Water Security, integrates theoretical knowledge with real-world applications. The programme's structured approach, including basic and core courses, doctoral research, and final certification, provides a clear path for academic success. Transparent workload distribution and access to digital resources enable students to effectively manage their studies.

While the programme demonstrates many strengths, some areas could be further improved. The experts recommend reviewing the consistency between course titles and content to avoid discrepancies in the module handbook. Furtherly, it is suggested to revise the literature lists for relevant courses to better align with their thematic focus. For example, the reading materials listed for «The Coordinate-Temporal Support in Geodesy», including Satellite Gravimetry and Solid Earth by Mehdi Eshagh, could also be included for «Satellite Methods of Study of the Gravitational Field of Earth».

6B07302 Geoinformatics (Bachelor), 7M07302 Geoinformatics (Master)

The programmes provide the students with a comprehensive education in Geoinformatics. The purposes of the educational programmes 6B07302 Geoinformatics (Bachelor), 7M07302 Geoinformatics (Master) and the corresponding learning outcomes are approved by the experts.

As in the first year of the bachelor's degree programme some general courses are obligatory in Kazakhstan, the expert group cannot comment on them content wise. In the first semester of the programme 6B07302 Geoinformatics (Bachelor) the modules of Geodesy and Cartography are studied. The experts got the impression that the contents are partly quite mathematical, e.g. the unit "Measurement error theory" or "Mathematical foundations of geographical maps". However, there seems to be room for implementing a preparatory course on Mathematics. Therefore, in a forthcoming version of this curriculum, the experts suggest adding a preparatory course to the programme.

For further enhancement of the programme, the English-language module handbooks should be revised regarding consistency and clarity. Some examples of inconsistencies in translation (e.g. "Digital map" instead of "digital card") or in the uniformity in listing learning outcomes for modules were observed.

In the 6B07302 Geoinformatics (Bachelor) curriculum, the experts were occasionally surprised by the order of the modules. For instance, the third semester module “Basics of Geoinformatics” containing basic terms and concepts seems to be placed relatively late and although being a basic course prerequisites for participation are given. Moreover, the module “GIS application setup” is taught in the third semester as well, but has ”Basics of Geoinformatics” as a prerequisite. Another observation was overlapping content in the curricula. The subject “spatial databases” is treated in eight Bachelor modules from the third to the sixth semester (in modules “Design and development of databases for GIS”, “Basics of Geoinformatics”, “Designing and compilation map in the GIS program”, “GIS application setup”, “Geointelligence”, “Open GIS software”, “Geoportal development”, “Web-GIS application development”). Although there are some different aspects on databases in desktop GIS and in Web-GIS and some repetitions can be helpful, the experts advise to avoid rolling out this subject out in all eight modules. Also, the subject “spatial databases” is again taken up in various Master modules. The same repetition of subjects is observed for other subjects, such as “coordinate systems” and “map projections”. Furthermore, the trajectories of the programme could be further profiled in order to have fewer overlapping topics and enable a deeper specialization.

To strengthen the curriculum, the experts suggest including or extending underrepresented subjects to the curriculum. For instance, the important subject of “land management” is not yet represented in the bachelor’s degree programme and it is only touched in the master’s degree programme. Moreover, in a forthcoming version of this curriculum it is suggested to insert “indoor navigation”.

The experts group checked the reading lists of modules and suggests revising them so that the bibliographic information is clearly and uniformly stated.

Regarding the staff responsible for the individual modules, it seemed to the experts that some persons are responsible for up to five modules, and that some persons are responsible for modules from entirely different disciplines. It is suggested to check if a more even distribution of module responsibilities at the faculty is possible. In the staff handbooks there is a table of teachers and modules, which does not entirely match with the related module handbooks. It is suggested to keep the respective documents up to date.

Furtherly, the expert group praises the efforts put into international networking by the faculty. The expert group visited the laboratories of the Department of Cartography and Geoinformatics. Due to some cooperations with software companies the department has a number of licences for software products such as ArcGIS. However, it is suggested to provide further modern geodetic hardware in the future. Although there are some GNSS receivers, total stations and levelling instruments, their number could be higher given the number of enrolled students. Primarily this applies to the BA students, with up to 40 students enrolled in a semester. In the

experts' point of view, particularly the market of GNSS receivers offers a number of low-cost devices, which should be purchased (see recommendation in chapter 6).

The provided documentation was very extensive and detailed; however the expert group noticed some inconsistencies. In order to underline the high-quality programmes, it is recommended to revise the module handbooks as suggested above.

6B05402 Mathematics (Bachelor), 7M05402 Mathematics (Master), 8D05401 Mathematics (PhD)

The expert group assesses the basic ideas of the teaching programmes as sensible and appropriate. The experts are convinced of the high professional competence of the teaching staff of the programmes. Publication and participation in scientific congresses of post-graduate students is supported by KazNU through the publication of a number of own scientific journals, partially included in the Thomson Reuters and Scopus databases, and the organization of conferences.

To match the high quality of the programmes verified during the on-site visit, it is recommended by the experts to revise the module handbooks. Concerning the bachelor's, master's and PhD-programme it should be made more transparent in the module handbook, that the electives are whole modules. The presentation in the module handbook of the master's degree is already relatively consistent in this matter and can serve as a model. The experts furtherly suggest that the description of the courses is written in such a way that the text blocks can be adopted unchanged at the various locations needed. This would make it easier to keep the information consistent in future, which is not always the case at present.

<u>6B05402 Mathematics (Bachelor)</u>

In addition to the general remarks, the following hints for developments were identified by the experts' group. The practical components of the curriculum should be better described for Mathematics (Bachelor). Also, the module handbook should describe in more detail which opportunities students have to complete the different practical phases (e.g. tasks at the university, teaching at schools, industrial activity) and what the requirements are (e.g. duration, work content) in order to pass the module. Additionally, it is suggested to streamline the learning outcomes in order to list only the most relevant ones.

The expert panel suggests that the module handbook and the description of the courses therein should be written as an orientation guide for applicants. This could especially include the structure of the degree programme in the next accreditation period. An example for recommended modifications of the module handbook lies in the introductory section on the aims of the bachelor's degree programme. There, mathematical skills are not mentioned explicitly and

the trajectories that are possible in this degree programme could be described more comprehensively. The definition of the general objective of the bachelor's programme in the module handbook should therefore be improved and better aimed at training future mathematicians, as it was described in the in the self-assessment report or on the university website.

The description of the course “Variations Calculus and Optimization Methods” seems to be missing in the module handbook and therefore should be added. It is suggested to revise the prerequisites for the courses in the module handbook and to formulate them with respect to existing courses. It could also be taken stronger into account that no previous knowledge other than school knowledge is available in the first semester. This applies to several courses, e.g. Mathematical Analysis I, Basics of Algebra, Professional Educational Practice in the 2nd semester etc. For instance, for the course “Theory of Sobolev spaces”, the module handbook lists the course “The Theory of Navier Stokes”, which is a Master's subject, as prerequisite.

In some cases, the description of the content of a course does not seem to match with the given title. The experts suggest checking the descriptions of the contents of the modules and courses and correcting them if necessary (e.g. Mathematical Analysis II, Discrete Mathematics, Basic Algebraic Structures, Mathematical Logic). It is suggested to revise if the content of the subject Geometry as it seems too basic for a course in the 4th semester.

When courses build on each other in terms of content, e.g. Basics of Algebra and Linear Algebra, the experts suggest that the content of the lectures in the module handbook be divided accordingly and differ stronger regarding the content.

When specifying literature, the focus should be on the textbooks and scripts recommended for learning for the respective course. The expert panel suggests checking the module descriptions to ensure that the literature matches the course content, is available in all teaching languages and is held up-to-date (e.g. Additional Chapters of Mathematical Statistics, Linear Differential Equations).

M05402 Mathematics (Master)

The Master's degree programme is suitable for introducing students to academic tasks and responsibilities in higher education and training them for these. The experts are very positive about the strong focus on research and the very individual supervision of students at the faculty. This is already reflected in the module handbook. However, the assignment of the individual courses in the module handbook to the respective categories (Core Disciplines, Major Disciplines and Research) could be made more comprehensible. For instance, the relationship between the compulsory subjects in the Core Disciplines and the relatively specialized electives could be further lined out.

As the course description of “Pedagogical Practice” seemed to lack clarity on whether it includes an internship or not, the experts suggest reviewing the module description and formulating requirements for students more clearly.

In some cases, English titles of courses could be shortened in accordance with international practice (e.g., “Boundary Values Problems for Differential Equations with partial Derivative” could be shortened). Also, the latest versions of the course description should be available in English (e.g., Course “Dissertation Writing”).

Another point observed concerns some of the course objectives and/or contents. Some are only described as a collection of keywords, that are difficult to understand (e.g., “Mathematical foundations of optimal control”, “Theory of stability of dynamic systems”, “Theory of boundary value problems of optimal control”, “Qualitative theory of differential equations”, “Additional chapters of Differential Equations”). The experts propose to revise the description of these courses.

It would be desirable for the literature to be updated in some cases, for instance in “Multidimensional Complex Analysis”. When courses build on each other, e.g. “The theory of Navier Stokes Equations” and “Inverse problems of Hydrodynamics”, the experts suggest that the content of the lectures in the module handbook be divided accordingly.

8D05401 Mathematics (PhD)

Overall, the doctoral programme in Mathematics is designed as a research-oriented and systematically structured teaching programme and is coherently structured with regard to the intended study and qualification goals. The programme reflects the individual supervision of the students and allows sufficient time and space for all activities related to writing a dissertation. The research and teaching internships are found to be a qualification-relevant component of the doctoral programme by the expert panel. The experts praise the established research environment that ensures intensive contact between the doctoral students and actively researching scientists in Kazakhstan and abroad. It offers ample opportunities for cooperation within and outside the university.

According to the experts, in some courses, the objectives are formulated exclusively in the form of keywords. It is suggested that the objectives are formulated in the form of competencies (e.g. “Spectral Theory of operators and analytical methods research of differential operators”, “System Nonlinear Differential Equation”).

Furtherly it is suggested, to reconsider the English translation of some course titles with the aim of adapting them to standard practice and making them shorter (e.g. “Theory of Extremely Problems in Banach Space”, “The methods of statistical evaluation of insurance premiums and reserves, taking into account the quality of data”). It would be desirable for the literature to be

updated in some cases, for instance in “Modern Problems of the Theory of Mathematical Physics”.

8D06104 Mathematical and Computer Modelling (PhD)

For the PhD programme 8D06104 Mathematical and Computer Modelling, the educational trajectories are composed taking into account the department scientific directions, as well as complying with the state educational standards. According to the experts, the programme follows a logic of compiling trajectories. In particular, there are three scientific directions related to the problems of mathematical modelling in the field of Inverse-Problem and Optimization, Models for Heat and Mass Transfer Problems and Nonlinear Dynamics of Deformable Media, which are then specifically expanded in advanced elective courses for the above-mentioned directions.

As stated above, the experts recommend revisiting the module handbooks for 8D06104 Mathematical and Computer Modelling. For instance, it should be made more transparent that the electives are whole modules. Furtherly, some course titles seemed identical and it was difficult to identify the differentiation between two courses regarding the content of the discipline. For example, it was not obvious to the experts that “Module of Modelling of nonlinear dynamics of deformable media” and “Nonlinear theory of deformable media” are different courses in terms of content. Therefore, it is suggested to give clearer course titles. For example, if there is a system of prerequisites for courses, it is suggested that one course be labelled as an introductory course, and the following course following as an advanced course. This suggestion concerns several specific courses.

In this issue, it is also suggested to carefully think about the prerequisites, since, according to the handbook, all courses are taught in one semester. Due to the often simultaneous conduct of courses, it is not easy to comply with prerequisites.

Some elective courses have prerequisites that are not included in the current 8D06104 Mathematical and Computer Modelling programme. The experts understand that in many cases these courses have been completed in the master's or bachelor's level courses at KazNU. However, it would also be beneficial to define a procedure for students who have not been able to complete these prerequisite courses before. The experts see it as desirable if this procedure was described in a handbook for students' information, or in a separate academic policy document.

For some disciplines of the educational programme, the “Research Seminar” course is indicated as a prerequisite. However, the programme contains several “Research Seminar” courses. They carry the same name, but different credits are awarded, which can lead to mis-

understandings when determining the required prerequisite. It is suggested to assign title numbers (abbreviation with numbers) to each “Research Seminar” course and indicate them accordingly and consistently when determining the programme prerequisites.

For some disciplines, such as the core discipline “Scientific Research Methods”, prerequisites like “Organization and Planning of Scientific Research History”, “Philosophy of Science”, and “Foreign Language” are indicated. As these courses are not included to the courses of the educational programme 8D06104 Mathematical and Computer Modelling it is suggested to review the necessary prerequisites for this course.

Almost all courses provide for an oral exam, which, due to the small number of student batches, is a good option for successfully evaluating the students. However, for some disciplines, given their name, it is suggested to conduct a written exam, or at least with elements of a written report. This applies, for instance, for the course “Academic Writing”.

In the programme, various tools and platforms for conducting scientific research, programming and data analysis are used, such as C++ and ANSYS. The quality of the research is confirmed by the publications in highly rated journals, as well as the technologies implementation and embedding the scientific results in research laboratories and university systems. Due to the fact that many modern platforms and systems do not support programming languages such as C++ and Fortran, the experts recommend shifting to more modern programming languages (Python, Java, C#, etc.) for successful integration and support by modern programming platforms and systems.

Due to the widespread use of artificial intelligence tools, which are also very useful in summarizing and reviewing scientific research, the experts suggest including AI tools topic to the course of “Scientific Research Methods”.

6B07110 Robotic Systems (Bachelor), 7M07118 Robotic Systems (Master)

The Robotic Systems programme at KazNU aims at educating engineers that are specialists in the field of robotics, capable of applying their knowledge to mechatronic and robotic systems in two settings of educational/research institutions and in industry. While the bachelor’s degree 6B07110 Robotic Systems focuses on building up fundamental engineering knowledge in robotics, the master’s degree 7M07118 Robotic Systems has a focus on the scientific components of designing robotic systems. Both the bachelor’s and master’s degree programmes align with the four purposes of higher education as outlined by the Council of Europe: Preparation for sustainable employment, personal development, preparing students for active citizenship, and creating a broad advanced knowledge base and stimulating research and innovation. Twelve learning outcomes for each of the two courses are clearly defined in the module

handbooks. They align adequately with the requirements from the professional fields in industry and education. The learning outcomes also distinguish between typical requirements that would be expected from a bachelor's and a master's degree graduate respectively. In the module handbook, the learning outcomes are convincingly allocated to the modules and subjects that are part of each programme.

Both programmes generally follow a thought-out structure with dependencies between the courses ensuring a smooth student progression. Students and other stakeholders are actively involved in the curriculum design process. Their input is crucial for aligning the programme with student career aspirations and market requirements. In the expert's point of view, this participatory approach also ensures that the programme fosters personal and professional development. External stakeholders include university partners and feedback from industry via the professional practice components.

The expected student workload for each course is clearly defined in the module handbook. Each course description includes teaching hour allocations in four categories: Lecture, Seminar, Laboratory, and Other. The descriptions also contain the expected hours of student workload. Laboratory courses are integral to the programme and ensure a balanced student experience with appropriate workloads allocated to them. The experts suggest incorporating the newly established KazNU Robotics Hub into the practical components of the bachelor's and master's degree programmes. Additionally, it would be desirable to increase the components for programming and software engineering in both the bachelor's and master's degree.

The experts saw further development potential for the course content of the bachelor subject "Physics", as it seems implausible to cover the various topics mentioned in one course only. The experts' recommendation is to focus on topics that are relevant to robotics in order to be able to cover the content in sufficient detail.

For further strengthening the programmes, the English module handbooks should be revised. The experts recommend the following six points for the module handbook revision in order to achieve more consistency and clarity:

1. In the interest of clarification, it needs to be made clear that electives are selected on a module level and not on a subject level. In addition to this, it needs to be made clear that the prerequisites for each course are actually "required" and not only "recommended".

2. There are identical module names for the following two bachelor modules: "Programming and Automatic Control" and "Design of Robotic Systems". This could be solved by adding numbers to the module names.

3. Regarding practical parts in the bachelor curriculum it was observed that currently all “professional practices” in the 2nd, 4th, 6th, and 8th semester have a workload of 4-5 weeks. However, the ECTS for each “professional practice” range from 2 to 8. This should be revised in the module handbook.

4. The following respective information should be included to the module description:

- Regarding the bachelor’s degree courses on electrical engineering in general, it should be made clearer where the basics such as Kirchhoff are taught.
- Regarding the bachelor’s degree courses on control in general, it should be clarified where the basics of PID control are taught.
- Regarding the bachelor’s degree courses on robotics in general, it should be made clear in which courses the four following fundamental concepts are taught (they should preferably be named explicitly): “Coordinate transformations: rotation & translation, homogenous coordinates”, “Forward and inverse kinematics”, “Denavit-Hardenberg method” and “Jacobi matrix”

5. Regarding the Master’s degree, in the subject “2D and 3D sensing for robotics and automation” the title of the course does not seem to align with the course content.

6. Regarding the Master’s degree subjects “Autonomous navigation” and “Modern mobile robots”, the experts recommend to explicitly name topics such as SLAM, localization, path planning, and obstacle avoidance.

The experts were impressed by the robotics study programmes. The following three suggestions relate to increasing the focus of the programmes on software: Programming languages C++ and Python could be taught and applied as part of the standard curriculum, i.e. not only for electives as it is currently the case. The experts also consider it useful to include teaching components related to the “Robotic Operating System (ROS)” as a compulsory component of the curriculum. Lastly, it could be beneficial to include teaching components to Programming Logic Controllers (PLCs) as part of the curriculum. To create space for extra software topics in the curriculum, a module that could potentially be removed is “Materials Mechanics”. According to the experts, these proposed development paths could be fruitful in making the programme future-proof for the coming requirements of the industry.

2.3 Conclusion

The criterion is **fulfilled.**

General Recommendations:

- The English module handbooks should be revised regarding consistency and clarity.

- The use of large language models when doing research should be implemented as a topic to the courses (like research methods).
- Easy access to the supercomputer that will be available from 2025 should be provided to Teaching staff and PhD students.

Specific Recommendations:

Recommendations for the study programmes “6B05205 Geography” (Bachelor), “7M05203 Geography” (Master), “7M01505 Geography” (Master ped)

- In order to motivate students for the theoretical classes, teaching should be enriched by field exercises and practical elements.
- Field experience should be extended.

Recommendations for the study programmes “6B05204 Meteorology” (Bachelor), “7M05207 Meteorology” (Master), “8D05204 Meteorology” (PhD), “6B05205 Geography (Bachelor)”, “7M05203 Geography” (Master), “7M01505 Geography” (Master ped), “8D05203 Hydrology” (PhD), “8D07301 Geodesy” (PhD)

- The intensity of use of the Remote Sensing Center of the Engineering and High-Tech Cluster (opened in 2023) in teaching should be increased.

Recommendation for the study programme “6B07110 Robotic Systems” (Bachelor)

- In the subject “Physics”, the course content should be limited to the topics relevant to robotics.

Recommendation for the study programme “8D06104 Mathematical and Computer Modelling” (PhD)

- The programming languages taught should be shifted to more modern programming environments (e.g., Python, Java, C#) to ensure successful integration and support by modern programming platforms and systems.

3 ESG Standard 1.3: Student-centred learning, teaching, and assessment

Institutions should ensure that the programmes are delivered in a way that encourages students to take an active role in creating the learning process, and that the assessment of students reflects this approach.

3.1 Implementation

The academic year for students consists of 2 semesters, lasting 15 weeks and 2 weeks of examination session. Planning of educational activities is carried out on the basis of the academic calendar, reflecting the periods of academic sessions, midterm and final control, professional practice, and other types of educational work during the academic year. A summer semester of at least 6 weeks is organized during the vacation period to meet the needs for additional education. The academic calendar includes an orientation week with meetings with administrative and teaching staff and information events.

In addition to traditional forms of training in the form of seminars and lectures, practical classes are also used, in which various teaching methods are applied, such as brainstorming, round tables, problem solving and project work, and case studies. Teachers also adapt innovative teaching methods to work with master's students in small groups. Additional and individual classes are conducted during the preparation of master's dissertations and articles for publication in scientific collections and conferences.

The procedure for organizing the online educational process is described in "Rules for organizing education process with the use of distance educational technologies in the "Al-Farabi Kazakh national university". KazNU uses “blended learning’’ to combine traditional face-to-face learning with digital platforms. On the Moodle platform, students are provided with access to digital and multimedia materials developed by teachers. The Open KazNU educational platform provides students and external participants with access to the university’s massive open online courses (MOOCs). This option is offered to students who are unable to attend classes at the university or who chose to study additional courses matching their interest.

In KazNU, the assessment of the quality of teaching is carried out according to the procedure "Quality Control of the Educational Process". The department makes and approves a schedule of open classes, mutual attendance of classes, where one of the assessment criteria is the analysis of teaching methods and their compliances with the learning outcomes.

At the end of each semester, students take an anonymous questionnaire through the Univer system concerning satisfaction with the teaching method, the quality of the curriculum and the overall effectiveness of each teacher. The survey results are used to adjust the teaching strategy of the discipline in order to improve the course content. The results of the surveys are

published on the university website and are taken into account in the KPI system and may have implications for salary.

In cases of complaints or questions, the student has the right to act within the approved Student Complaint Handling Rules, which define the procedure for addressing complaints. At the first stage, students can contact the adviser for help and advice with a problem, complaint or request.

The criteria and methods for assessing the educational achievements of students are defined in the provisions of the Academic Policy, defining the following types of control: monitoring; midterm control, final control (final exam). Monitoring is a systematic check of students' knowledge in accordance with the syllabus, which is carried out by the teacher during the semester. Midterm control (MC) is a control of students' academic achievements within the framework of an academic discipline, carried out twice in accordance with the academic calendar. At the University, current and midterm assessments are conducted in the form of colloquiums, written tests, assessments for participation in student debates, round tables, and case studies. The format of the final exam for each academic discipline is determined by the teacher independently, communicated to students no later than a month after the start of the academic period and entered into the Univer system.

The assessment of the monitoring is 60% of the final assessment of knowledge in the discipline, the assessment of the final exam is 40% of the final assessment in the discipline. All types of control assume evaluation within the 100-point scale, corresponding to the letter system with a digital equivalent accepted in international practice, meaning positive grades from "A" to "D" (100-50) in descending order and the "unsatisfactory" grades "FX" (25-49) and "F" (0-24). The form of monitoring and midterm controls are established by the teacher, included in the syllabus of the discipline and is communicated to the students. In case of "FX" students may retake the final exam for a fee without repeating the course during a set period of time.

Examinations can be online, offline, synchronous and asynchronous using online technologies, before each semester the forms and methods are approved by the document “Instruction for final examination fall semester 2024-2025 with application of distance educational technologies”. Testing, standard written exam, oral exam are used. As a rule, written exams are assessed by at least two independent teachers to ensure transparency and objectivity. Oral exams are held in the classroom. Combined methods of conducting examinations are also practiced. Essays, written projects are checked by the Plagiarism system and for the use of artificial intelligence. The procedure for conducting an appeal is outlined in the Rules for Final Control (Examination Session) and is conducted by the appeals commission. The "Rules for conducting final controls" in written online exams regulate the procedure for cases of unallowed use of artificial intelligence systems.

3.2 Assessment

The university demonstrates a good level of organization of the educational process, which is confirmed by the large contingent of students, student performance and low dropout rates. It was emphasized that student learning outcomes are the most important indicator of the University's performance. Comprehensive and detailed information on the quality and effectiveness of student learning is regularly obtained by analysing student performance in faculties, specializations in various study programmes, employment indicators, as well as student research activities.

As mentioned in discussion with students, assessment criteria and methods are clearly described in each course syllabus that is available on Univer system. It includes important information about what is expected from students taking the course, the course requirements, assignments and deadlines, participation and attendance expectations, and how the grade is calculated.

The examinations are organized in such a way that they allow for a comprehensive assessment of the extent to which students have mastered the required learning outcomes. The content and forms (online, oral, written, tests and combined) of the examinations are proposed by the course lecturers and approved by the responsible faculty academic committee.

For master's students, a large part of the assignments is focused on active, conscious, and consistent independent work. As support, faculty members provide group and individual consultations to students. These consultations are conducted through discussions, reviews of completed assignments, explanations of problematic areas, and are carried out both in person and through modern communication platforms such as WhatsApp, Zoom Meetings, Google Meet.

For objectivity, the final control exams are conducted by the course instructor, but can include multiple reviewers in specific cases, especially if appeals or academic concerns arise. The University strives to create a fair and supportive learning environment for all students. In this context, the rules for assessment include consideration of mitigating circumstances. For example, mitigating circumstances may include medical issues or illnesses, family or personal difficulties, participation in projects or activities that contribute to societal development or personal circumstances affecting the learning process.

A student who disagrees with the result of the final assessment for a course (exam grade) has the right to submit a justified written appeal addressed to the appeals commission.

Academic Committees for Teaching and Learning Quality provide training to instructors on the application of unified assessment criteria and reviews and analyses of assessment results are conducted. Interviews revealed that student feedback is taken into account and contributes to

continuous improvement. A large percentage of respondents (80%) demonstrate student involvement and active participation in the learning process. There is mandatory attendance for undergraduate students, and the number of hours in the classroom is approximately 36-40 hours per week. During the conversation with students, the experts gained the impression that the workload is manageable. While it was not detailed how often teaching methods are improved based on quality assessment, interviews with students showed that they note the positive response of teachers to student feedback.

The work of advisors is well organized at the university. The system of interaction between advisors and students ensures consistent and effective technological solutions to student problems, maintaining a comfortable and productive educational environment. Each student has the right to guaranteed support in the event of any problems or questions.

The Freedom to choose the form of examination is seen a positive aspect of the modern educational process by the expert panel. This approach provides for increased flexibility, autonomy of the university and motivation of students. The variety of exam forms provides a number of advantages. With the right choice of form and format, the exam allows for a qualitative assessment of the achievements of learning outcomes, covering various aspects of student preparation. In addition, this approach takes into account the various needs of students, which ensures an increase in their learning ability and adaptability to the educational process. An important aspect of the modern examination system is ensuring academic integrity. Plagiarism checking tools used at KazNU help not only to identify violations, but also to promote the development of students' skills in creating original content.

Regarding the doctoral programmes, the experts observed the promotion of a student-centred learning environment that encourages reflection and provides a safe, inclusive space. The programmes use a variety of teaching methods. Essential ones include project-based and problem-based learning, case studies, and interactive activities such as discussions, brainstorming, and webinars. Doctoral supervision according to regulations is carried out by domestic and international supervisors. The tailor-made support provided by the foreign supervisor was estimated as a substantial contribution. It was very positively appreciated in the discussions, either in terms of producing publications or learning a new methodology.

The programmes allow doctoral students to choose international scientific internships and participate in research projects that are directly related to their dissertation research. By international scientific internships students are also introduced to independent research oriented work. In the discussions, the students appreciated very much the opportunity to choose and do a short-term internship, even though the amount allocated does not cover all expenses.

The expert panel finds that the university adheres to the principles of student-centered learning in the educational process by complying with approved rules and procedures to guarantee honesty, objectivity, and transparency. The university's efforts to create a fair and supportive learning environment for all students are evident, which was also expressed during the meetings. The examination system at KazNU is considered understandable to students and is transparent. In terms of study organisation, the university is well organised, as evidenced by high study success rates and generally low drop-out rates.

3.3 Conclusion

The criterion is **fulfilled.**

4 ESG Standard 1.4: Student admission, progression, recognition, and certification

Institutions should consistently apply pre-defined and published regulations covering all phases of the student "life cycle", e.g. student admission, progression, recognition and certification.

4.1 Implementation

According to the university, persons with a general secondary, technical and vocational, post-secondary, higher education can be admitted to bachelor's degree programmes of higher education of the university. Applicants must achieve a passing threshold score established by the university. This score is determined based on the specific training direction and is a key factor in the admission process.

For certain programmes, applicants are required to pass the Unified National Test (UNT) and score a minimum number of points. At the start of each academic year, the university holds an orientation week for new students to introduce them to the university.

For educational programmes of postgraduate education (master's, doctoral) the university accepts persons who have mastered educational programmes of higher / postgraduate education. In this case, persons who have not mastered at the previous level of education prerequisites, necessary for the successful development of educational programmes of postgraduate education are allowed to submit documents with the condition of mastering the necessary disciplines on a fee-paying basis after enrolment. Persons with a master's degree and at least 9 (nine) months of work experience are eligible for admission to the doctoral programme.

Acceptance of applications for master's degree and doctoral PhD programmes is carried out online/offline by the University Admissions Committee or through the information system. To apply, the applicant must register on the website.

Persons who have mastered educational programmes of higher education are eligible for admission to master's and PhD level studies. Applicants are required to demonstrate proficiency in a foreign language in accordance with the Common European Framework of Reference for Languages.

Admission to master's and PhD programmes is based on comprehensive testing (CT) and/or entrance examinations. The passing score for admission to the programmes is determined based on the results of comprehensive testing and/or entrance examinations.

The authenticity and validity of certificates submitted by applicants are verified by the Admissions Committee. The University Admissions Committee has the right to refuse to accept a document whose authenticity is not verified. The university has established processes and IT systems to collect, monitor, and act on information related to student progression. The system is in place for managing the educational process, including features for monitoring student progression, generating reports on the educational process, and analyzing the results of student assessments.

The Univer 2.0 Information System serves as a central portal to support processes related to assessing students' knowledge, examinations, filling the rating journal, and monitoring students' knowledge. It includes services for user management, general information, electronic document management, support for the learning process, educational process organization, system administration, and social and educational process services.

The Open KazNU Online Educational Platform offers students the opportunity to choose an alternative form of studying disciplines, including studying within the online course of another teacher from KazNU or another university.

The university's quality assurance system is based on European standards and recommendations, indicating a commitment to ensuring the recognition of credit points in accordance with international standards. KazNU maintains collaborations with other educational institutions and national ENIC/NARIC centres to ensure comparable recognition of qualifications.

The transfer of credits is carried out by the Registrar's Office on the basis of the student's application and certificates to the Department of Academic Affairs. The department is responsible for objectively establishing the equivalence of the volume and content of the studied disciplines or the research work carried out to the requirements of the curriculum.

The maximum number of credits allowed to be transferred from foreign educational organizations is set individually, taking into account the rating of the foreign educational programme of higher and/or postgraduate education and the profile of the EP.

A European Diploma Supplement is automatically provided to every university graduate in English along with the main document of education. The Diploma Supplement includes various sections such as information identifying the holder of the qualification, details about the qualifications, information about the level and duration of qualifications, information about the program and obtained results, qualification function information, additional information, application certification, and information about the national higher education system.

4.2 Assessment

The experts' group acknowledges the admission procedure that is based on national regulations on the one hand, and on specifications by KazNU on the other. Both are clearly defined and transparent due to the publication on the university's website.

With the establishment of a corresponding administrative unit and the use of suitable software, the university has the necessary processes in place to collect, monitor and process information on the course of studies.

The experts find the procedures for the recognition of academic achievements, e.g., from previous studies or foreign studies, clearly defined and transparent.

The documents that students receive after successfully completing their studies correspond to the documents required by the standards.

The examinations of the programmes take place within an appropriate framework and essentially reflect the knowledge required of the students appropriately.

Regarding PhD programmes, the requirements for national and international thesis supervisors are documented and meet international standards. The admission procedure is identical for all KazNU PhD programmes which is helpful for the interested students. The availability of grants varies from year to year

Doctoral supervision carried out by domestic and international supervisors. The domestic scientific consultant must be a full-time employee of Al-Farabi Kazakh National University, while the international consultant must be a leading scholar and a full-time employee of a foreign university or research center. These partnerships are formalized through cooperation agreements and contracts. Interaction between the PhD students and their scientific consultants occurs regularly in various forms based on mutual agreement, including contact consultations, online meetings with foreign supervisors, participation in international conferences, and progress reports.

The language proficiency requirements for admission to the PhD appear appropriate and well suited to support a positive course of study. The selection procedure appears appropriate to the experts. Whereas the requirements for professional practice and publication prior to the

beginning of a doctoral programme appear high at first glance the experts could convince themselves of the adequacy. According to the doctoral students met during the visit, it is feasible to fulfill these requirements, as the practical activities in the bachelor's and master's degree studies can be credited at KazNU. Publishing is already supported during the master's degree, for instance through the publication of several scientific journals by KazNU scientists.

The experts learned that the option of changing thesis supervisors is available and is actually used, as the statistics show. Measured by the activities required in the curriculum of the PhD programmes (scientific internship, publication and conference participation, international exchange) and the exchange onsite, the doctoral students can clearly be described as early-stage researchers.

4.3 Conclusion

The criterion is **fulfilled.**

5 ESG Standard 1.5: Teaching staff

Institutions should assure themselves of the competence of their teachers. They should apply fair and transparent processes for the recruitment and development of the staff.

5.1 Implementation

5.1.1 Faculty of Geography and Environmental Management

The directions and indicators of the university staff development are fixed in the "Development Strategy of Kazakh National University named after Al-Farabi up to 2020". The faculty reports the research engagement in activities of the Ministry of Science and Higher Education as well as in international projects.

According to the university, the faculty members publish in high-ranking journals indexed in Scopus and Web of Science and regularly participate in professional development. An annual competition is held to fill vacant positions at Al-Farabi University, ensuring the recruitment of talents. The university reports that faculty members go abroad for research stays and international professors also supervise theses at KazNU. These activities form part of both internal and external development programmes. The university describes in the self assessment report that the faculty members continuously aim to improve their professional competencies by taking advanced training courses. The university states that the teaching staff broadly integrates traditional and innovative teaching methods. In addition to full-time teachers, some departments are supported by part-time workers and invited specialists from partner organizations.

According to the university, the selection of personnel is carried out on the basis of an analysis of the needs of the educational programme. Based on the results, a competition is announced

to fill vacant positions. The faculty reports to be satisfied with the change in the age composition (increase of candidates of sciences under the age of 40) as well as with the low staff turnover at the departments. Several faculty members received honours and awards for their contributions to science and education, such as “The Best University Teacher of the Republic of Kazakhstan," the Crystal Globe Award from the Russian Geographical Society, and other awards.

6B05204 Meteorology (Bachelor), 7M05207 Meteorology (Master), 8D05204 Meteorology (PhD)

According to the university, the educational process for the bachelor's degree in "6B05204 Meteorology" is delivered by 19 faculty members from the Department of Meteorology and Hydrology, including: 4 Doctors of Science, 6 Candidates of Science, 2 PhDs, 7 Senior Lecturers.

The master's degree in "7M05207 Meteorology" is taught by 13 staff members: 3 Doctors of Science, 6 Candidates of Science, 2 PhDs, 2 Senior Lecturers.

The doctoral degree in "8D05204 Meteorology" is delivered by 6 faculty members, including: 2 Doctors of Science, 4 Candidates of Science.

Regarding research stays, one faculty member completed a scientific internship in Finland in 2024 for instance. The department also includes part-time faculty and invited specialists from partner organizations such as RSE "Kazhydromet" whose involvement makes up no more than 20% of the teaching staff. This collaboration helps integrate practical experience into the educational process. The department's faculty members actively serve on editorial boards of national scientific journals such as "Hydrometeorology and Ecology" and they participate in the Scientific and Technical councils as well as industry councils. Young scientists from the department also participate in competitions and some were awarded grants.

8D05203 Hydrology (PhD)

The educational process in 8D05203 Hydrology (PhD) is carried out by five faculty members at the Department of Meteorology and Hydrology:1 Doctor of Sciences, 3 Candidates of Sciences, 5 PhDs.

The Teaching staff of Hydrology also participates in national grant programmes, such as BR21882122, which focuses on “Sustainable Development of Natural and Economic and Socio-Economic Systems in the Western Kazakhstan Region in the Context of Green Growth: Comprehensive Analysis, Concept, Forecast Assessments, and Scenarios”. Another national programme addresses the managing of desertification processes in the southern regions of Kazakhstan to ensure sustainable development of rural areas.

In addition to full-time faculty, the department includes part-time instructors and invited specialists from partner organizations, such as the Joint-Stock Company Institute of Geography and Water Security. Their contributions, which do not exceed 20% of the faculty, help integrate practical experience into the educational process. Additionally, PhD students have foreign scientific supervisors.

6B05205 Geography (Bachelor), 7M05203 Geography (Master), 7M01505 Geography (Master) ped

The bachelor's degree programme "6B05205 Geography" is implemented by 30 teachers of the Department of Geography, Land Management and Cadastre: 3 Doctors of Science, 7 Candidates of Science, 8 PhDs, 12 Senior Lecturers.

The master's degree programme "7M05203 Geography" is implemented by 25 staff members: 5 Doctors of Science, 9 Candidates of Science, 6 PhDs, 5 Senior Lecturers.

The educational process of the master's degree programme "7M01505 Geography" (Master) ped is carried out by teaching staff of the Department of Geography, Land Management and Cadastre: 4 Doctors of Sciences, 6 Candidates of Sciences, 4 PhDs.

The university describes in the self assessment report, that teaching staff members of the department have participated in creating foundational resources such as the National Atlas of the Republic of Kazakhstan as well as educational materials integral to the national curriculum. Faculty members frequently present their work at international scientific conferences in countries including China, France, Germany, Turkey, and Russia. They also supervise key research projects like the Megagrant on "Sustainable Development of the West Kazakhstan Region" (2023-2025), which focuses on assessing the natural resource potential, social sphere, and economic landscape of the region in the context of sustainable development and green growth.

8D07301 Geodesy (PhD)

The university describes the strengths of the personnel potential in 8D07301 Geodesy (PhD) as related to the scientific school and the system of staff training and the stability of teams. Personnel coming from the industrial sphere are engaged in the department’s activity within the framework of contractual projects.

Highly qualified teaching staff are involved in the educational process, including: 3 Doctors of Sciences, at least 2 Candidates of Sciences, 3 PhDs.

At the department, there are staff members with significant academic and professional achievements, for instance a corresponding member of the People's Academy of Kazakhstan “Ecology” and a full member of the International Academy of Informatization. Furtherly, an associate professor at the department managed a project focused on developing combined

geotechnology parameters for safe and sustainable chromite mining at deep horizons (from 2018-2020).

Within the framework of the state programme “Attracting Foreign Scholars” the department invited international professors to give lectures, in particular from the USA.

6B07302 Geoinformatics (Bachelor), 7M07302 Geoinformatics (Master)

Highly qualified teachers are involved in the educational process of the Geoinformatics specialization, among which there are: 4 Doctors of Sciences, 7 PhDs, 9 Candidates of Sciences.

According to the university, a strength of the personnel potential lies in the presence of the scientific school and the system of training, the stability of teams, as well as a significant number of personnel who came from the industrial sphere and are engaged in production within the framework of contractual projects to date.

The university reports that there is a member of the Academy of Pedagogical Sciences of the Republic of Kazakhstan among the teaching staff.

5.1.2 Faculty of Mechanics and Mathematics

The directions and indicators of the university staff development are fixed in the “Development Strategy of Kazakh National University named after Al-Farabi up to 2020”. The faculty reports the research engagement in activities of the Ministry of Science and Higher Education as well as in international projects.

According to the university, the faculty members publish in high-ranking journals indexed in Scopus and Web of Science and regularly participate in professional development. The university reports that faculty members go abroad for research stays and international professors also supervise theses at KazNU. These activities form part of both internal and external development programmes. The university describes in the self assessment report that the faculty members continuously aim to improve their professional competencies by taking advanced training courses. The university states that the teaching staff broadly integrates traditional and innovative teaching methods. In addition to full-time teachers, some departments are supported by part-time workers and invited specialists from partner organizations.

The university describes in the self-assessment report, that the faculty broadly integrates traditional and innovative teaching methods into the modern process of training specialists. When applying for teaching positions, candidates participate in a competition for vacant positions, must demonstrate their professional competencies in relation to the qualification requirements (RUS). For this purpose, a system for hiring teachers and working with personnel has been developed and approved in accordance with the approved “Rules for the competitive replacement of teaching staff and research workers of the NAO “Al-Farabi KazNU”. The roles and

responsibilities of the faculty concerning conducting lectures, scientific supervision, mentoring, and participation in research projects are regulated and reflected in the relevant standard documentation (job descriptions RUS).

According to the university, regular assessments and monitoring of faculty activities are conducted. At the beginning of the year, an individual work plan for each instructor is developed, setting tasks for achieving indicative performance indicators. At the end of the year, instructors fill out an indicative plan based on their performance results. Collected data is analyzed and strategies are developed to enhance teaching effectiveness in terms of pedagogical and research activities.

A delegation from the Faculty of Mechanics and Mathematics, visited South Korea from October 22 to 27, 2018. The delegation visited the Korean Advanced Institute of Science and Technology (KAIST) in Daejeon and Yonsei University in Seoul. Additionally, within the framework of the state programme "Attraction of Foreign Scholars," professors invited from leading international universities give lectures at the department.

6B05402 Mathematics (Bachelor), 7M05402 Mathematics (Master), 8D05401 Mathematics (PhD)

The Institute for Advanced Studies is an integral part of the university structure. Academic staff can improve their professional skills at this institute. In addition, each year academic staff compete in a nationwide competition for state grants called "The Best Professor of Higher Education". The funds can be used for academic and research purposes, as well as for professional growth. Several teachers at the institute are holders of the "Best Teacher of Higher Education" grant. Every year, professors undergo internships in different countries and improve their qualifications. Students and professors who demonstrate the best results participate in the competition for the presidential scholarship "Bolashak", which allows them to continue their studies at renowned foreign universities.

8D06104 Mathematical and Computer Modelling (PhD)

The faculty involved in the educational process of the programme consists of 4 Doctors of Physical and Mathematical Sciences from the Department of Mathematical and Computer Modeling, along with 8 candidates of sciences and PhDs.

According to the university, all instructors engage in research activities, serve as leaders and/or participants in projects funded by the Ministry of Science and Higher Education of the Republic of Kazakhstan. They also regularly undergo professional development (for example, through the "500 Scientists" programme of the Bolashak International Programme, as well as participation in training sessions and seminars under the Erasmus+ program). Thus, two faculty

members became beneficiaries of the “500 Scientists” programme in 2023 and 2024, respectively, under which the programme winners undertake internships at foreign universities as visiting researchers for 6 to 12 months.

The university reports that the faculty members participate in the editorial boards of domestic and international scientific journals such as Mathematical Problems in Engineering and Applied Mathematical Modelling. Over the past five years, for instance, two faculty members have been awarded the title of "Best University Teacher" and one has received the title of "Best Researcher". There are also two members of the public academies (National Academy of Sciences and National Engineering Academy).

6B07110 Robotic Systems (Bachelor), 7M07118 Robotic Systems (Master)

The teaching staff of the Mechanics Department of the Mechanics and Mathematics Faculty, implementing the EP "6B07110 - Robotic Systems" and EP "7M07118 - Robotic Systems", is formed from qualified and competent scientific and pedagogical workers. According to the university, they are experienced in scientific, pedagogical and practical activities.

The share of full-time scientific and pedagogical workers involved in the educational process of bachelor's and master's degrees in "Robotic Systems" is 100% (of which 5 Doctors of Science, 6 Candidates of Sciences, 4 PhDs). The university reports that among them there are academicians of the National Academy of Sciences of the Republic of Kazakhstan, the best teachers of the university and holders of scholarships and further honours.

The educational process involves teachers from leading universities around the world as visiting professors and annually invites foreign scientists from leading universities (USA, Poland) to give lectures, conduct consultations and seminars.

According to the university, almost all teachers, along with teaching activities, carry out scientific and applied research in various fields of robotic systems and technical sciences. The teaching staffs’ research spans various scientific and educational areas relevant to "Robotic Systems" and includes participation in both international and national grant projects. One example of an International educational project is APPLE "Applied curriculum in space exploration and intelligent robotic systems" under the Erasmus + programme (Coordinator - Technical University of Berlin, Germany). The teachers of the department are represented in the editorial boards of domestic and foreign scientific journals, e.g. the IFToMM Journal “Problems of Mechanics”.

5.2 Assessment

5.2.1 Faculty of Geography and Environmental Management

Hiring Process

As the experts could read in the documentation of the university and as it was outlined in the discussion with the University Management and the Dean of the Faculty, the university applies transparent and objective criteria for hiring and also for development of the teaching staff. Rules for competitive replacement of positions of the teaching staff and researchers are well described and the corresponding document “Rule of Competitive Filling of Positions of Professorial teaching staff and researchers Al-Farabi Kazakh National University” has been approved by the universities Council in 2024.

The experts learned that the same rules on advertising academic vacancies apply to all faculties of the university. The selection of personnel is carried out based on an analysis of the needs of the respective educational programme. The announcement of the competition for vacant positions of teaching staff and researchers is posted in the media, including Internet resources. Documents of applicants for participation in the competition are accepted within a prescribed period. A special selection committee, chaired by the Vice-Rector and including deans, heads of departments and full-time researchers, assesses applicants’ suitability for the position on the basis of their experience in education or scientific organisations, participation in scientific research and/or international projects, and publications listed in WoS and Scopus databases. During the onsite visit, it was pointed out that applicants for academic posts with no previous experience have to give a presentation as a test lecture, while applicants with experience in academic work absolve an interview. An English language certificate (IELTS 6.0 or equivalent) is also required if the applicant is not a foreign researcher or academic with experience. It is mentioned that professionals who do not have an academic degree and academic title but have sufficient practical experience may apply for associate professor or professor only in the fields of arts, culture and sport.

Staff development

During conversations with lecturers and the dean it was revealed that the university regularly evaluates the work of teachers and staff, providing them with feedback from students, colleagues and administration.

The experts positively evaluated the staff development approach as professional development opportunities for the teaching staff, including young researchers and lecturers, is provided. It was pointed out that young lecturers do not feel overloaded and that there is an appropriate balance between teaching and research. The faculty’s young scientists were well informed

about the possibility to apply for grants and that there are opportunities to change academic loads and research workload in case of obtaining a grant.

The experts are convinced of the regular improvement of qualifications of the academic staff. For example, staff of faculty continuously improve their professional competencies by taking advanced training courses, participation in summer schools.

The discussions also emphasised the importance of international cooperation as a component for the development of scientific staff. Presentations and discussions showed a significant number of international cooperation agreements. These cooperation agreements are also the basis for scientific internships for academic staff, during which joint publications are most often prepared, modernly equipped laboratories are used, new methodologies are learned, etc. activities are carried out.

The experts highlight that the university is making significant efforts to promote the development of the academic staff, as only highly qualified lecturers can attract students to the University's study programmes.

Staff evaluation

According to the expert panel, the staff of the study programmes is evaluated in great detail and in the majority of aspects the high qualification and appropriateness is significant. A wide range of academic staff – Doctor of Science, Candidates of Science, PhD, Senior lecturers, including PhD students in bachelor's degree programmes – participate in the implementation of the faculty's educational programmes. PhD programmes are delivered by academic staff with doctoral degrees and visiting professors. The involvement of visiting professors is seen as a positive development by the experts as it helps to ensure the internationalisation of study programmes, as well as the implementation of study courses or programmes in English.

During the meeting with the programme leaders, it was mentioned that the faculty will enrol around 50 Chinese students in the Master's programme in the next academic year. This implies that more and more courses will be taught in English. Therefore, one of the most important tasks is to find a way to increase the number of academic staff who can professionally participate in the delivery of study courses in English. The experts recommend the uto ensure to have enough English-speaking staff at the faculty to be able to offer courses in English according to the requirements in the curriculum.

5.2.2 Faculty of Mechanics and Mathematics

Hiring Process

The process for recruitment of the teaching staff is lead by a "competition commission" established by the university. The university holds an annual competition to fill vacant positions that

are identified by the Faculties. The process starts by the commission announcing the vacant position on the university website, via national mass media such as newspapers, and via electronic means. According to the discussions with the HR department, the positions are open for a period of 20 days. Subsequently, the selection of suitable candidates takes place with the involvement of Faculty staff including the Dean.

The university's selection process follows the legislation of the Republic of Kazakhstan and the regulatory legal acts of the Ministry of Internal Affairs. The formal requirements for the hiring of teaching staff are clearly defined and transparently communicated to potential candidates. The selection process includes an in-depth interview with candidates. For junior teaching staff (Teacher and Senior Lecturer), candidates are required to demonstrate their teaching abilities via a "test lecture" presentation. According to the discussions with the HR department, the selection process takes on the order of two months.

The university published a document named "Rules of Competitive Filling of Positions of Professorial Staff and Researchers" which describes the process and formal requirements for hiring in great detail.

Development of Teaching Staff

The experts learned that once hired, the university supports the development of its teaching staff by continuously monitoring and improving the teaching quality. This is done by collecting feedback from students who can anonymously evaluate each course using the Univer.Kaznu IT system. Feedback is also collected by conducting a peer evaluation where the teaching staff provides feedback to each other. This may include visiting each other's lectures. The university has published a document named "Quality control of the educational process" that describes the feedback procedures clearly and transparently.

Another opportunity for the professional development and career advancement of the teaching staff is facilitated via the Institute for Advanced Training and Additional Education (IATAE). The experts positively assess the university's activities in the IATAE such as programmes for advanced training and retraining. The experts are convinced that the university encourages and rewards research activities of its teaching staff such as publishing in international journals and conferences. The experts value this as it ensures the teaching staff to remain up to date in their respective fields. According to the discussions with teaching staff, the allocated teaching load generally leaves sufficient time to conduct research activities that can lead to publications. The university financially supports travelling to and attending of conferences, seminars and training courses. Other staff mobility activities include visiting partner universities and giving guest lectures. The university rewards staff development and research activities via a KPI system that influences the salary levels.

The development of teaching staff is also supported by having access to up-to-date equipment in the laboratories. This includes the new computing cluster currently being established in the Faculty of Geography and Environment Management that will be utilized as a shared resource, and the newly established KazNU Robotics and Industry 4.0 Hub.

Staff evaluation

The experts see the number and the qualifications of teaching staff as appropriate to cover the study programmes. The experts learned that different seniority levels for the teaching staff exist at KazNU: Teacher, Senior Lecturer, Assistant Professor, Associate Professor, Professor. Each level has distinguished job responsibilities and qualification requirements as set out in the document “Rules of Competitive Filling of Positions of Professorial Teaching Staff and Researchers”. It is also worth noting that KazNU places an emphasis on the pedagogical components in their study programmes, therefore educating future teachers in their respective fields. As a result, it can be expected that KazNU trains part of their own future staff ensuring qualifications exactly match the teaching requirements.

The expert group noticed that nearly all subjects across the various study programmes list three languages: Kazakh, Russian, and English. Although the number of international students who require English as their teaching language appears limited, the fact that the university offers English as a language of instructions require that sufficient staff needs to be available who can teach in English. The experts recommend that the university should ensure to have sufficient English-speaking staff at the faculty to be able to offer courses in English according to the requirements in the curriculum. Furtherly, it is suggested to indicate information on the availability of certificates and the level of proficiency in a foreign language (such as IELTC, TOEFL, etc.) for the teaching staff in the staff handbook.

As a suggestion, the experts would see it fruitful to hire additional PhD-level staff in robotics with complimentary backgrounds to existing teaching staff (e.g. with a computer science and programming background). This could help ensuring that the broad and evolving demands in robotics are continuously met.

5.3 Conclusion

The criterion is **fulfilled.**

General Recommendation:

- The university should ensure that sufficient English-speaking staff are available in the faculties to offer courses in English in accordance with the requirements of the curriculum.

6 ESG Standard 1.6: Learning resources and student support

Institutions should have appropriate funding for learning and teaching activities and ensure that adequate and readily accessible learning resources and student support are provided.

6.1 Implementation

The university describes in the self-assessment report that it provides several facilities and services supporting the students in the educational process. The material-technical, library, and information resources used for organizing the learning process meet the requirements of each educational programme offered.

The university infrastructure is a unified complex with the status of a university campus, with a total building area of 83,422.1 m² and educational buildings covering 165,000 m². There are 15 dormitories with a total area of 79,215.2 m², accommodating 5,034 students.

Each student is provided with individual access to informational and educational resources throughout their study period. The social infrastructure of Al-Farabi KazNU includes the facilities of Museums, the Student Palace, and the Library, Sports and wellness complex, Computer labs, Keremet Student Service Center, dormitories, medical center, and social-psychological service.

The Al-Farabi Library is 17,846.1 m², with additional reading rooms in the university buildings on Masanchi and Karasai Batyr Streets, covering an area of 660.8 m². The library's collection includes about 3 million books. The library provides textbooks for all educational programmes across 16 faculties. As of January 1, 2024, the unified informational and library collection consists of 2,243,761 copies, including 574,256 copies in the state language (26%), 1,536,641 copies in Russian (70.3%), and 132,864 copies in foreign languages (5.9%). The collection includes materials in Kazakh, Russian, English, and other languages. The traditional reading room offers 700 seats and the library services and reading rooms are equipped with automated workstations. The electronic library, with a total area of about 1,000 m² and seating for 200, is divided into several functional zones such as: Internet access zone, Multimedia resources zone, Satellite TV zone, Laptop work zone. The university states to provide access to databases including: Springerlink, ScienceDirect, Scopus, EBSCO, Wiley, IEEE, Electronic Library, SciVal, Aknurpress, Digital Library, SoftBooks, Test access.

The university reports that the Information and Software Complex "Univer.kaznu.kz" (Univer 2.0) serves as an administration and management system for the university's educational activities. The Univer system is accessible to students, faculty, methodologists, educational and methodological departments, and administration. Through the Univer system, students become active participants in the learning process, independently forming their individual study

plans with the help of an advisor. Students have the opportunity conduct course registrations and all relevant processes regarding the educational process.

In recent years, the university has created a "smart" information and communication infrastructure and a Smart Campus, integrating cloud and mobile technologies. The following information and educational systems are used for this purpose:

- Information system for managing the educational process, based on “Univer 2.0”
- The Moodle distance learning system
- The Open KazNU online educational platform
- Microsoft Power BI cloud business analytics service
- The Salem Office document management system.

The university, in collaboration with European universities, annually receives grants for student training through programmes (e.g. the Erasmus+ "International Credit Mobility") and successfully implements external and internal academic mobility programmes.

According to the university, in addition to material resources, students are assigned a mentor. Mentors conduct support sessions for students, including mentor hours, training seminars, leadership lectures, and studies of the university's regulatory documents. Graduates receive support in job search and career development.

6.2 Assessment

After visiting the faculties and the discussions with programme directors and students, the members of the expert group concluded that the university disposes over a good level of facilities and material resources. In general, the spatial and material resources support the achievement of the course goals and are appropriate to conduct training programmes. The involvement of students in the implementation of commercial projects, development of research skills and motivation is an excellent practice that contributes to their professional and personal growth and strengthens the link between theoretical learning and practical experience. Also, in the experts’ point of view, getting undergraduate students interested in research can help meet the university's goal of increasing the number of master's and doctoral students by 25%. This approach promotes early involvement of students in research activities and encourages them to further continue their education in master's and doctoral programmes.

The library is fully equipped and its opening hours are convenient for students and teachers. In general, the amount of literature provided is considered by faculty and students to be quite sufficient. In this regard, the expert group suggests continuing to increase accesses to international databases, publications of specialists in English, as well as to electronic resources

with Open Access. Furtherly, the provided access to library services, especially the electronic library services, could be made even better known among university members.

PhD students participating in international internships can utilize the university's modern scientific library, modern laboratories, learn specific software or work on publications with their second supervisor.

There is sufficient access to computers and software provided. The Faculty of Mechanics and Mathematics for instance has its own server with high computing power and will have access to the supercomputer, which is due to be commissioned in 2025. The experts were informed that students will receive access to its computing power when writing their theses and for other forms of independent work. PhD students have their own workplace at the institute and a workstation that they can use personally. Special software is made available to PhD students on these computers if required.

The Faculty of Geography and Environmental Management has material and technical facilities for the implementation of the educational programme, research and teaching laboratories. For example, the modern Kazakhstan-China joint laboratory "Remote Sensing Technology and Applications", the Laboratory for Modelling the Dynamics of the Quality Composition of Water Resources are of great importance. At the same time, the university is conscious of the more diversified material base needed for the training of PhD students, depending on the research direction of the PhD students. Consequently, the Department is entering into agreements to expand the research resources available to doctoral students. The experts positively assess this engagement to offer resources beyond its own capacities and existing facilities, in cooperation with academic, research and project organisations that have additional research funding. For the study programmes 6B07302 Geoinformatics (Bachelor), 7M07302 Geoinformatics (Master) and 8D07301 Geodesy (PhD), the number of geodetic instruments in the laboratories should be increased. This measure is proposed to ensure the quality of education in geodesy and satellite navigation and to facilitate the access to UAV to PhD students.

It is evident that various forms of collaboration are being sought to enable PhD students to develop their research work. For example, doctoral students of the department for scientific research have possibilities to use instruments and installations of the Faculty of Mechanics and Mathematics Al-Farabi KazNU. Modelling processes for hydrological phenomena, such as floods and spring runoff, are conducted using computer technology, software, and resources from RSE "Kazhydromet", the Institute of Space Research, the Geography Institute, and other scientific centres in Almaty. Scientific topics concerning the assessment of pollution, and the chemical composition of water bodies are addressed using the facilities of the hydrochemical laboratory at the Geography Institute.

During the onsite visit, students expressed their satisfaction with the current learning environment. The experts are convinced that the choice of online and offline learning methods offered by KazNU helps students with special needs and is also convenient for those who are on study or internship abroad. This approach is considered flexible and adaptive on the part of the university, ensuring that education is accessible to all categories of students. The Keremet Service Center is convenient for students, providing all necessary services at one site, which makes it much easier to receive support and maintains effective interaction with the university. Mentoring possibilities are provided at an appropriate level. It is suggested to install coworking spaces at the university to enable students to study together and work on group works.

6.3 Conclusion

The criterion is **fulfilled.**

Recommendations for the study programme “8D07301 Geodesy” (PhD), “6B07302 Geoinformatics” (Bachelor), “7M07302 Geoinformatics” (Master)

- The number of geodetic instruments in the laboratories should be increased to ensure the quality of education in geodesy and satellite navigation.

7 ESG Standard 1.7: Information management

Institutions should ensure that they collect, analyse and use relevant information for the effective management of their programmes and other activities.

7.1 Implementation

The university describes its information management via the AES Univer version 2.0. in the self-assessment report. With this system, students are exposed to the weekly stream that covers the student's milestone assessments. Having a login and password, the student, can monitor the process of his own work during the semester in the teacher's assessment. The AES Univer version 2.0 developed by the university ensures confidentiality and integrity of information stored in databases of information systems. Official and personal information is protected by security means, since users need to authenticate to access.

The university has established classical management and information transfer processes. Information management involves the following activities: organization of information flows in the university, both from management to performers and interested persons, and from interested persons, including students and teachers to management. The collection, analysis, and provision of reports on the activities of the university is facilitated. Around 20 automated workstations (AWS) are provided for electronical services.

The university has defined the procedure for ensuring the protection of information and appointed responsible persons from the Department of Information and Communication Technologies and other departments. The reliability and timeliness of information analysis and data provision is ensured. Only IT specialists of the university have access to the administration of the electronic education management system.

The university uses AES Univer version 2.0 as modern information and communication technologies and software tools for information processing. This university management software includes subsystems for student administration, educational process support, and integrated systems. Univer, which is a portal designed to support the student related processes. It acts as the university's main information service and includes the following services:

- User management services: Admissions Campaign, etc.
- General information services: News, Announcements, etc.
- Electronic document management services: Scholarship Orders, etc.
- Support services for the learning process: Catalogue of disciplines, etc.
- Educational process organization services: Management of teaching materials, etc.
- System administration services: Reference Information Management, Role Policy, etc.
- Social and educational process services: Record of activities, etc.
- Services for monitoring, control and analysis of the educational process: Indicative plan, Faculty Rating, Student Rating, etc.
- Services for filing electronic applications
- Integration services: Downloading data on personnel, etc.

The Situation Management Center (SMC) provides integrated management of the educational process, research, social, economic, administrative and managerial activities. IS Univer solves the main problems associated with the educational process i.e. the personal student/teacher accounts or the electronic schedule. In the IS Univer the Monitoring option generates automated reports. Data visualization reports are also generated in Microsoft Power BI. Further systems used are Moodle distance learning system, Open KazNU online educational platform, Microsoft Power BI cloud business intelligence service and Salem Office document management system.

Questionnaire surveys of teaching staff and students reflect the effectiveness and efficiency of structural units. The EP management systematically uses data from surveys and questionnaires to improve the internal quality assurance system. Managers evaluate the effectiveness

of planned activities for improvement, develop and implement the necessary corrective actions. To monitor educational activities and provide a feedback system for students at KazNU, the results of several research projects conducted on a regular basis by the Center for Sociological Research and Social Engineering are used since 2010.

Documentary approval of procedures for processing information on personal data of employees and teaching staff is enshrined in the internal rules of KazNU. Therefore, personal data is protected in accordance with paragraph 22 of the internal rules. There is a system of monitoring educational activities, including several types of research via surveys. Surveys are conducted through the corporate system "UNIVER", providing the possibility to form differentiated results and reporting materials in the context of all structural units of the university. Participation of students, faculty and staff of the university in the surveys is voluntary. Students, faculty and staff of the university have the right to send their comments, complaints and suggestions on any issues related to the organization.

The information and educational systems OPEN KazNU provides reporting and monitoring functions, including annual reports of the teaching staff. Thereby, insights can be gained on the following spheres:

- on the implementation of individual work plans, the annual reports of departments and faculties on research and development, educational work
- analysis of the results of the implementation of development plans
- analysis of internal audits

7.2 Assessment

The information systems operating at KazNU, namely the academic information system Univer 2.0, Moodle, Open KazNU, and the document management system Salem Office, seem to be efficiently and successfully used. Since these systems are naturally not freely accessible, the experts rely on the self-assessment report as well as on the valuable insights delivered by staff students and the university management during the site visit.

The official website of Al-Farabi KazNU is the main platform for providing information to the public. The information is updated daily, every department has its own page and a responsible person for this sake. The expert group took an extensive survey of this website, which is provided in Kazakh, Russian and English. It concludes that this website is both fit-for-purpose as well as appealing.

The expert group approves the surveys for the teachers, facilities and overall satisfaction and the publication of the results in Univer. The Univer systems facilitates the generation of various reports on student progress, provides students with information about their courses, ensures

transparency in grading and supports various other management tasks. The experts group got to the impression that procedure is reasonable. The experts group furtherly acknowledges the regular meetings that are held with the rector, vice-rectors, and heads of divisions and the corresponding reports to assess the effectiveness of KazNU.

Student satisfaction is gauged systematically through surveys, interviews, and suggestion boxes. The collected data can be considered as complete, current and usable.

The academic information system Univer acts as an educational management platform for all participants in the educational process, including students, teachers, and administrative staff. It provides broad access to essential information such as academic performance data, digital libraries, academic calendars, and educational materials. The experts group assess this system as useful to meet the educational requirements.

The students and employees are included effectively into the data gathering processes. Summarizing, the experts group concludes that the information management meets the requirements and effectively supports the educational process.

7.3 Conclusion

The criterion is **fulfilled.**

8 ESG Standard 1.8: Public information

Institutions should publish information about their activities, including programmes, which is clear, accurate, objective, up-to date and readily accessible.

8.1 Implementation

The university reports that public information is disseminated through the official university website, the official website of the Departments as well as social media. Information is published in three languages (Kazakh, Russian, and English). A specialized version of the university website for visually impaired has also been implemented. The university reports to ensure transparency and accessibility of information. The new version of the website aims to enhance user experience and provide comprehensive information about programmes, policies, and institutional updates. However, updates and refinements are still underway to ensure all content is fully accessible and up-to-date, aligning with the university’s commitment to clear and public information dissemination.

The information portal “portal.kaznu” is designed for the operational and effective activities of the university.

The University's Department of Information and Communication (DIC) has tripled the number of published materials on the website https://farabi.university/ and social networks:

- Instagram
- Facebook
- VKontakte
- YouTube
- TikTok
- Telegram and Telegram career office

The corporate newspaper ‘Qazaq Universitety’, which has a national status, is effectively used.

The website regularly publishes articles and reports on the recent events taking place at the university: information about the latest scientific discoveries, projects, achievements of both teachers and students, as well as educational programmes, sports, cultural events and more.

All topics and materials posted on the university's website are published in the official accounts of the university's social networks.

The official website provides details on admission rules for bachelor’s, master’s, doctoral, and post-doctoral programmes, descriptions of educational programmes, and information on the teaching staff. It also covers the university's material resources, educational and methodological support, research activities, and student life, including social and sports support. The site features updates on international cooperation, published articles by the Rector, a media digest, and showcases the achievements of the university, and relevant events.

All materials, including those related to educational programmes, are prepared by Department of Information and Communication staff. The materials are published in the media and on the university’s official social media pages and website under the “News” section. Accurate and verified information about educational programmes helps prospective students choose KazNU.

Information on the conditions for admission of applicants is presented on the university website (RU), as well as on the pages of faculties for each EP. The rules and conditions for studying students, the rules for conducting various types of examinations, tests, methods and criteria for grading are described in the Academic Policy of the university. Documentation on all the rules of the “Student Life Cycle” is available to all students, posted on the university website and on the student’s personal page in the Univer IS.

Information about the calendar of the educational process, including exams and holidays, is provided in the Academic Calendar, which is annually approved by the Academic Council of the university. Information about the employment and careers of university graduates is posted on the website, in the “Career and Employment” tab.

8.2 Assessment

The mechanisms implemented for information dissemination on the new website demonstrate significant improvements. The section on academic programmes provides a wide range of data; however, it is suggested to further improve the filtering and quick search functionality for users' convenience, particularly for those accessing the site for the first time. For example, the structure on https://welcome.kaznu.kz/en/education_programs/doctorate/ could be enhanced for facilitating a faster navigation.

In general, information about the programmes, admission, objectives, career prospects and course content are publicly available on the university's website. In the doctoral programme description for "Geodesy," the same course is listed as both mandatory and elective. Moreover, minor mistranslations in the English-language version, such as the phrase "A Theory of Frames of Reference is in a Geodesy" were observed, while the Russian version "Теория систем отсчета в геодезии" is perfectly accurate. The experts recommend revising the content of the website to eliminate inconsistencies in course descriptions and in English translations in order to optimize readability for prospective students. This could be implemented by conducting regular audits of published content. For the Mathematics programmes, it is suggested that more information about the study programmes and course contents is accessible on the university's website and that further information on syllabi is published in the internal area.

Information about the employment and careers of KazNU's students and graduates is posted on the "Career and Employment" section of the website. As there was only one post for the entire year 2024, but many posts on the year 2023, the experts suggest that this section could be updated more regularly so that students are well informed.

A key strength of KazNU's communication strategy is its use of social media platforms like Instagram, Facebook, and Telegram, which ensure the timely dissemination of news. Messengers, including WhatsApp and WeChat, enhance feedback mechanisms, particularly for international users who may face restrictions when accessing certain platforms. These efforts broaden the university's reach and improve user interaction.

The university further enhances transparency by publishing graduate employment statistics, reporting an average employment rate of 85%, including 69% for bachelor's degree graduates, 84% for master's degree graduates, and 100% for doctoral degree graduates. This reflects the high quality of graduate training and their competitiveness in the labour market. However, the lack of detailed methodology for data collection and disaggregated statistics might reduce the perceived reliability of these figures.

In the experts' point of view, KazNU also strengthens its positive image by publishing content on scientific projects, international partnerships, and student life. Another notable feature is the availability of a website version for users with special needs. However, the quality of text-to-speech needs further improvement, as pronunciation errors render this feature less effective. The experts suggest improving this functionality given the university's commitment to fostering inclusivity and equal opportunities.

Besides providing online content, KazNU offers brochures that are published about the faculty specific advertising information.

The university demonstrates a high level of openness, accessibility, and transparency, actively leveraging modern technologies and communication strategies. Despite a few points that could be improved, KazNU successfully demonstrates its commitment to ensuring the availability and transparency of information, solidifying its position as one of the leading educational institutions in the region.

8.3 Conclusion

The criterion is **fulfilled.**

General Recommendation:

- The content of the website should be revised to eliminate inconsistencies in the course descriptions and in English translations.

9 ESG Standard 1.9: On-going monitoring and periodic review of programmes

Institutions should monitor and periodically review their programmes to ensure that they achieve the objectives set for them and respond to the needs of students and society. These reviews should lead to continuous improvement of the programme. Any action planned or taken as a result should be communicated to all those concerned.

9.1 Implementation

According to the university, the faculties constantly conduct monitoring, periodic analysis, and review of educational programmes (EP) to ensure their effective implementation, create a favourable learning environment, and meet the demands of students, the labour market, and society. Monitoring and periodic analysis of EP are conducted through various forms and methods (surveys, interviews, focus groups, etc.).

Additionally, coordinators and developers regularly conduct evaluations and revisions of EP to improve their quality, involving students, graduates, and employers through interviews, surveys, sociological polls, etc. This process takes into account various indicators (student body, satisfaction with programme implementation, employment of graduates, etc.).

The university describes in the self-assessment report how procedures for the development, approval, and implementation of EP are mainly regulated, based on the following internal regulatory documents:

- The Concept of Modernization of Educational Programmes
- Regulation on the Procedure for Development and Approval of Higher and Postgraduate Educational Programs
- Regulation on the Academic Committee for Training Directions

The Academic Committees for Training Directions undertake the modernization activities to the educational programme. The Development plans include the following aspects: improve their content in accordance with modern trends in the development of science, technology, culture, economy, and technology, as well as engage key consumers of educational services - employers and students, to participate in the activities.

The formation of professional competencies of graduates of educational programmes and modules of professional competencies of EP are mandatory and coordinated with representatives of employers. Various forms and methods are used for this purpose, including surveys, interviews, and focus groups.

The Department of Academic Affairs conducts seminars and consultations with teaching staff on issues of methodological support for IWS, examination of guidelines and recommendations on the types and forms of IWS and develops recommendations for improving the organization of IWS based on an analysis of student performance.

The Dean's Office of the Faculty is responsible for coordinating monitoring activities. The system of monitoring the academic achievements of students at the university includes various forms: ongoing monitoring of academic performance, boundary control, final certification. The assessment of students' knowledge, skills and abilities is an integral assessment of the results of all types of student's activities during the study period.

To monitor the academic achievements of students, after each examination session, a report is compiled containing an analysis of the results of the session, which are discussed at meetings of the Academic Council of Faculties, Departments, Academic Committees on the quality of education and Teaching. As a result, tasks are formulated to further improve the educational process in the field of improving the quality of teaching and learning of students.

The evaluation of the demand for educational programmes (EPs) is conducted by employers and graduates through interviews, questionnaires, sociological surveys, etc.

As a result of internal evaluations, the university's developed EPs are aligned with the needs of stakeholders (students, employers, society) and external qualification requirements.

At the university, the Academic Committees hold responsibility for the quality of educational programmes, conducting periodic assessments based on key parameters:

- labour market demand for EPs at regional, national, and international levels
- capacity, including human, intellectual, scientific, and material resources
- fostering collaborations
- alignment of EP learning outcomes with National Qualification Framework, Industry Qualification Framework, and professional standards
- ensuring transparency in teaching, learning, and assessment processes for achieving learning outcomes

Since 2010, the Centre for Sociological Research and Social Engineering has been monitoring the quality of the university's educational activities. The results are provided for individual units and are accessible to the heads of structural units. They are posted in the Univer system. Furtherly, results are published on the university and centre websites.

9.2 Assessment

Evidently KazNU is paying significant attention to study process monitoring and the activities are well-described. During the site visit, the experts got acquainted with the monitoring and readjustment processes of the study programmes at KazNU. They found the internal evaluation processes for the study programmes well-suited to ensure a high quality of the programmes.

Employers' monitoring and evaluation, both during the curriculum development phase and during implementation, is an important factor in ensuring the quality of the curriculum and in improving it. For instance, each lecturer is evaluated by its students using a standardized questionary. Based on the discussion rounds with educational programme managers, the expert group was informed of high response rates to the evaluations (above 80%). As it seemed to the experts that the response rates were not recorded numerically, it is suggested that the response rates be recorded numerically to enable rapid countermeasures in the event of low response rates. The experts assess the evaluation process as transparent, providing access to the ratings of the lecturers to all students. It was convincingly explained to the panel that course evaluations with negative feedback lead to appropriate consequences.

In addition to the lecturer evaluation relevant aspects concerning the student's needs are evaluated regularly. Student satisfaction is gauged systematically covering areas such as the development of social and living conditions, educational activities, leisure, employee salaries, and student financial support. Therefore, the process of continuous monitoring can be considered as well-suited to evaluate the changing need of student cohorts, student workload and student expectation, which are also intertwined with developments in society.

9.3 Conclusion

The criterion is **fulfilled.**

10 ESG Standard 1.10: Cyclical external quality assurance

Institutions should undergo external quality assurance in line with the ESG on a cyclical basis.

10.1 Implementation

The university reports that its study programmes undergo external evaluation by national and international accreditation bodies, as well as by representatives of employers, the public, and the academic community. External evaluation plays a key role in ensuring that the educational programmes meet the requirements of national and international professional standards and labour market demands.

The main procedures for external evaluation, recognition and the preparedness of graduates according include:

- State Accreditation of the Republic of Kazakhstan regarding compliance with the requirements of the State Educational Standards of the Republic of Kazakhstan and other relevant national legal frameworks.
- Independent Quality Assessment of Education (IQAA-Ranking)
- The National Chamber of Entrepreneurs "Atameken" (Atameken Ranking)
- IAAR Eurasian University Ranking (IAAR EUR)
- International University Evaluation by Subject Areas (QS WUR by Subject)

Accreditation of the university and its educational programmes is managed by the Accreditation and Licensing Service. In 2024, the Independent Agency for Quality Assurance in Education (IQAA) accredited the university for a period of five years.

According to the university, these cyclical external quality assurance procedures ensure continuous improvement and alignment of the university's educational programmes with both national regulations and international best practices. This ongoing process includes feedback

and improvement mechanisms based on the results of the latest external evaluations, which are used to enhance the university's academic offerings and ensure sustained quality in future accreditation processes. All accreditation certificates are publicly available on the official KazNU website, ensuring transparency and easy access for all stakeholders.

10.2 Assessment

All study programmes at KazNU are regularly accredited either by Kazakh national or international accreditation agencies. The university has also passed successfully institutional accreditation. The recommendations provided during the evaluations are considered by the university and if necessary are implemented.

The university also participates in national and international rankings and has been constantly improving its rankings.

10.3 Conclusion

The criterion is **fulfilled.**

IV Recommendation to the Accreditation Commission of ACQUIN

1 Assessment of compliance the Standards and Guidelines in the Higher European Area (ESG) in the actual official version and the German Council of Science and Humanities (WR)

The study programmes “6B05204 Meteorology” (Bachelor), “7M05207 Meteorology” (Master), “8D05204 Meteorology” (PhD), “6B05205 Geography” (Bachelor) , “7M05203 Geography” (Master), “7M01505 Geography” (Master ped), “8D05203 Hydrology” (PhD), “8D07301 Geodesy” (PhD), “6B07302 Geoinformatics” (Bachelor), “7M07302 Geoinformatics” (Master), “6B05402 Mathematics” (Bachelor), “7M05402 Mathematics” (Master), “8D05401 Mathematics” (PhD), “8D06104 Mathematical and Computer Modelling” (PhD), “6B07110 Robotic Systems” (Bachelor), “7M07118 Robotic Systems” (Master) were assessed on the basis of the "Standards and Guidelines for Quality Assurance in the European Higher Education Area" (ESG), the Salzburg Recommendations (applicable for doctoral programmes), and the national or other relevant regulations.

The expert group concludes that the **ESG standards** 1.1 (Policy for quality assurance), 1.2 (Design and approval of programmes), 1.3 (Student-centred learning, teaching and assessment), 1.4 (Student admission, progression, recognition and certification), 1.5 (Teaching staff), 1.6 (Learning resources and student support), 1.7 (Information management), 1.8 (Public information), 1.9 (On-going monitoring and periodic review of programmes) and 1.10 (Cyclical external quality assurance) are fulfilled.

The expert group concludes that the **Salzburg Recommendations** 1 (Research as the basis and the difference), 2 (Critical mass and critical diversity), 3 (Recruitment, admission and status), 4 (Supervision), 5 (Outcomes), 6 (Career development), 7 (Credits), 8 (Quality and accountability), 9 (Internationalisation), 10 (Funding) 11 (Autonomy), 12 (Legal framework) and 13 (Intersectoral collaboration) are fulfilled.

The assessment criteria are as follows:

Standard 1.1 Policy for quality assurance: Universities have a publicly accessible quality assurance strategy, which is part of their strategic management. This strategy is developed and implemented by internal stakeholder representatives through appropriate structures and processes, involving external stakeholders.

For PhD programmes additionally apply

- Salzburg Recommendation 8: Quality and accountability
- Salzburg Recommendation 12: Legal framework

- Salzburg Recommendation 13: Intersectoral collaboration

The criterion is **fulfilled.**

Standard 1.2 Design and approval of programmes: Universities have procedures for the design and approval of their courses. The courses are designed in such a way that their objectives, including the desired learning outcomes, can be achieved. The qualification obtained during a degree programme is clearly defined and communicated; it refers to the corresponding level of the national qualifications framework for higher education and, consequently, the qualifications framework for the European Higher Education Area.

For PhD programmes additionally apply

- Salzburg Recommendation 11: Autonomy
- Salzburg Recommendation 1: Research as the basis and the difference
- Salzburg Recommendation 2: Critical mass and critical diversity
- Salzburg Recommendation 5: Outcomes
- Salzburg Recommendation 7: Credits
- Salzburg Recommendation 9: Internationalisation
- Salzburg Recommendation 6: Career development

The criterion is **fulfilled.**

Standard 1.3 Student-centred learning, teaching and assessment: Universities ensure that the courses offered are carried out in such a way as to encourage students to play an active role in the design of the learning process and that this approach is also taken into account when assessing students / examinations.

For PhD programmes additionally apply

- Salzburg Recommendation 4: Supervision

The criterion is **fulfilled.**

Standard 1.4 Student admission, progression, recognition and certification: Universities ensure that the courses offered are carried out in such a way as to encourage students to play an active role in the design of the learning process and that this approach is also taken into account when assessing students / examinations.

For PhD programmes additionally apply

- Salzburg Recommendation 3: Recruitment, recognition, and certification

The criterion is **fulfilled.**

Standard 1.5 Teaching staff: Universities ensure the competence of their teachers. They use fair and transparent procedures for the recruitment and further training of their employees.

The criterion is **fulfilled.**

Standard 1.6 Learning resources and student support: The university has adequate funding to finance study and teaching and ensure that there is always a sufficient and readily available range of learning and support available for their studies.

For PhD programmes additionally apply

- Salzburg Recommendation 10: Funding

The criterion is **fulfilled.**

Standard 1.7 Information management: Universities ensure that they collect, analyze and use the relevant data relevant to the successful conduct of studies and other activities.

The criterion is **fulfilled.**

Standard 1.8 Public information: Universities publish easily understandable, correct, objective, up-to-date and well-accessible information about their activities and courses of study.

The criterion is **fulfilled.**

Standard 1.9 On-going monitoring and periodic review of programmes: Universities are constantly monitoring their courses and regularly reviewing them to ensure that they achieve the goals set and meet the needs of students and society. The tests lead to a continuous improvement of the courses. All affected parties will be informed about any measures planned or resulting from this.

The criterion is **fulfilled.**

Standard 1.10 Cyclical external quality assurance: Universities regularly undergo external quality assurance procedures in accordance with the ESG.

The criterion is **fulfilled.**

The peer-review experts note that the recommendations from the previous accreditation procedure have been adequately taken into account.

2 Accreditation Recommendation

The peer-review experts recommend unconditional accreditation of “6B05204 Meteorology” (Bachelor), “7M05207 Meteorology” (Master), “8D05204 Meteorology” (PhD), “6B05205 Geography” (Bachelor) , “7M05203 Geography” (Master), “7M01505 Geography” (Master ped), “8D05203 Hydrology” (PhD), “8D07301 Geodesy” (PhD), “6B07302 Geoinformatics” (Bachelor), “7M07302 Geoinformatics” (Master), “6B05402 Mathematics” (Bachelor), “7M05402 Mathematics” (Master), “8D05401 Mathematics” (PhD), “8D06104 Mathematical and Computer Modelling” (PhD), “6B07110 Robotic Systems” (Bachelor), “7M07118 Robotic Systems” (Master).

The peer group **proposes the following accreditation**:

- Accreditation without conditions

The peer-review experts recommend the following **recommendations:**

General recommendations for all study programmes:

1. The English module handbooks should be revised regarding consistency and clarity.
2. The use of large language models when doing research should be implemented as a topic to the courses (like research methods).
3. Easy access to the supercomputer that will be available from 2025 should be provided to Teaching staff and PhD students.
4. The university should ensure that sufficient English-speaking staff are available in the faculties to offer courses in English in accordance with the requirements of the curriculum.
5. The content of the website should be revised to eliminate inconsistencies in the course descriptions and in English translations.

Recommendations for study programme “6B05204 Meteorology” (Bachelor)

1. The intensity of use of the Remote Sensing Center of the Engineering and High-Tech Cluster (opened in 2023) in teaching should be increased.

Recommendations for study programme “7M05207 Meteorology” (Master)

1. The intensity of use of the Remote Sensing Center of the Engineering and High-Tech Cluster (opened in 2023) in teaching should be increased.

Recommendations for study programme "8D05204 Meteorology" (PhD)

1. The intensity of use of the Remote Sensing Center of the Engineering and High-Tech Cluster (opened in 2023) in teaching should be increased.

Recommendations for the study programme "6B05205 Geography" (Bachelor)

1. The intensity of use of the Remote Sensing Center of the Engineering and High-Tech Cluster (opened in 2023) in teaching should be increased.
2. In order to motivate students for the theoretical classes, teaching should be enriched by field exercises and practical elements.
3. Field experience should be extended.

Recommendations for the study programme "7M05203 Geography" (Master)

1. The intensity of use of the Remote Sensing Center of the Engineering and High-Tech Cluster (opened in 2023) in teaching should be increased.
2. In order to motivate students for the theoretical classes, teaching should be enriched by field exercises and practical elements.
3. Field experience should be extended.

Recommendations for the study programme "7M01505 Geography" (Master ped)

1. The intensity of use of the Remote Sensing Center of the Engineering and High-Tech Cluster (opened in 2023) in teaching should be increased.
2. In order to motivate students for the theoretical classes, teaching should be enriched by field exercises and practical elements.
3. Field experience should be extended.

Recommendations for study programme "8D05203 Hydrology" (PhD)

1. The intensity of use of the Remote Sensing Center of the Engineering and High-Tech Cluster (opened in 2023) in teaching should be increased.

Recommendations for study programme "8D07301 Geodesy" (PhD)

1. The intensity of use of the Remote Sensing Center of the Engineering and High-Tech Cluster (opened in 2023) in teaching should be increased.
2. The number of geodetic instruments in the laboratories should be increased to ensure the quality of education in geodesy and satellite navigation.

Recommendations for the study programme "6B07302 Geoinformatics" (Bachelor)

1. The number of geodetic instruments in the laboratories should be increased to ensure the quality of education in geodesy and satellite navigation.

Recommendations for the study programme "7M07302 Geoinformatics" (Master)

1. The number of geodetic instruments in the laboratories should be increased to ensure the quality of education in geodesy and satellite navigation.

Recommendation for the study programme "6B07110 Robotic Systems" (Bachelor)

1. In the subject "Physics", the course content should be limited to the topics relevant to robotics.

Recommendation for the study programme "8D06104 Mathematical and Computer Modelling" (PhD)

1. The programming languages taught should be shifted to more modern programming environments (e.g., Python, Java, C#) to ensure successful integration and support by modern programming platforms and systems.

V Decisions of the Accreditation Commission of ACQUIN

Based on the evaluation report of the expert group and the statement of the Higher Education Institution, the Accreditation Commission of ACQUIN has made its decision on the 05 June 2025:

General recommendations for all study programmes:

- The English module handbooks should be revised regarding consistency and clarity.
- The use of large language models when doing research should be implemented as a topic to the courses (like research methods).
- Easy access to the supercomputer that will be available from 2025 should be provided to Teaching staff and PhD students.
- The university should ensure that sufficient English-speaking staff are available in the faculties to offer courses in English in accordance with the requirements of the curriculum.
- The content of the website should be revised to eliminate inconsistencies in the course descriptions and in English translations.

6B05204 Meteorology (Bachelor)

The study programme "6B05204 Meteorology" (Bachelor) is accredited without any conditions.
The accreditation is valid until 30. September 2031.

The following recommendations are given for the further development of the study programme:

- The intensity of use of the Remote Sensing Center of the Engineering and High-Tech Cluster (opened in 2023) in teaching should be increased.

7M05207 Meteorology (Master)

The study programme "7M05207 Meteorology" (Master) is accredited without any conditions.
The accreditation is valid until 30. September 2031.

The following recommendations are given for the further development of the study programme:

- The intensity of use of the Remote Sensing Center of the Engineering and High-Tech Cluster (opened in 2023) in teaching should be increased.

8D05204 Meteorology (PhD)

The study programme "8D05204 Meteorology" (PhD) is accredited without any conditions.
The accreditation is valid until 30. September 2031.

The following recommendations are given for the further development of the study programme:

- The intensity of use of the Remote Sensing Center of the Engineering and High-Tech Cluster (opened in 2023) in teaching should be increased.

6B05205 Geography (Bachelor)

The study programme "6B05205 Geography" (Bachelor) is accredited without any conditions.
The accreditation is valid until 30. September 2031.

The following recommendations are given for the further development of the study programme:

- The intensity of use of the Remote Sensing Center of the Engineering and High-Tech Cluster (opened in 2023) in teaching should be increased.
- In order to motivate students for the theoretical classes, teaching should be enriched by field exercises and practical elements.
- Field experience should be extended.

7M05203 Geography (Master)

The study programme "7M05203 Geography" (Master) is accredited without any conditions.
The accreditation is valid until 30. September 2031.

The following recommendations are given for the further development of the study programme:

- The intensity of use of the Remote Sensing Center of the Engineering and High-Tech Cluster (opened in 2023) in teaching should be increased.
- In order to motivate students for the theoretical classes, teaching should be enriched by field exercises and practical elements.
- Field experience should be extended.

7M01505 Geography (pedagogical) (Master)

The study programme "7M01505 Geography (pedagogical)" (Master) is accredited without any conditions.
The accreditation is valid until 30. September 2031.

The following recommendations are given for the further development of the study programme:

- The intensity of use of the Remote Sensing Center of the Engineering and High-Tech Cluster (opened in 2023) in teaching should be increased.
- In order to motivate students for the theoretical classes, teaching should be enriched by field exercises and practical elements.
- Field experience should be extended

8D05203 Hydrology (PhD)

The study programme "8D05203 Hydrology" (PhD) is accredited without any conditions.
The accreditation is valid until 30. September 2031.

The following recommendations are given for the further development of the study programme:

- The intensity of use of the Remote Sensing Center of the Engineering and High-Tech Cluster (opened in 2023) in teaching should be increased.

8D07301 Geodesy (PhD)

The study programme "8D07301 Geodesy" (PhD) is accredited without any conditions.
The accreditation is valid until 30. September 2031.

The following recommendations are given for the further development of the study programme:

- The intensity of use of the Remote Sensing Center of the Engineering and High-Tech Cluster (opened in 2023) in teaching should be increased.
- The number of geodetic instruments in the laboratories should be increased to ensure the quality of education in geodesy and satellite navigation.

6B07302 Geoinformatics (Bachelor)

The study programme "6B07302 Geoinformatics" (Bachelor) is accredited without any conditions.
The accreditation is valid until 30. September 2031.

The following recommendations are given for the further development of the study programme:

- The number of geodetic instruments in the laboratories should be increased to ensure the quality of education in geodesy and satellite navigation.

7M07302 Geoinformatics (Master)

The study programme "7M07302 Geoinformatics" (Master) is accredited without any conditions.
The accreditation is valid until 30. September 2031.

The following recommendations are given for the further development of the study programme:

- The number of geodetic instruments in the laboratories should be increased to ensure the quality of education in geodesy and satellite navigation.

6B05402 Mathematics (Bachelor)

The study programme "6B05402 Mathematics" (Bachelor) is accredited without any conditions.
The accreditation is valid until 30. September 2032.

7M05402 Mathematics (Master)

The study programme "7M05402 Mathematics" (Master) is accredited without any conditions.
The accreditation is valid until 30. September 2032.

8D05401 Mathematics (PhD)

The study programme "8D05401 Mathematics" (PhD) is accredited without any conditions.
The accreditation is valid until 30. September 2031.

8D06104 Mathematical and Computer Modelling (PhD)

The study programme "8D06104 Mathematical and Computer Modelling" (PhD) is accredited without any conditions.
The accreditation is valid until 30. September 2031.

The following recommendations are given for the further development of the study programme:

- The programming languages taught should be shifted to more modern programming environments (e.g., Python, Java, C#) to ensure successful integration and support by modern programming platforms and systems.

6B07110 Robotic Systems (Bachelor)

The study programme "6B07110 Robotic Systems" (Bachelor) is accredited without any conditions.
The accreditation is valid until 30. September 2031.

The following recommendations are given for the further development of the study programme:

- In the subject "Physics", the course content should be limited to the topics relevant to robotics.

7M07118 Robotic Systems (Master)

The study programme "7M07118 Robotic Systems" (Master) is accredited without any conditions.
The accreditation is valid until 30. September 2031.