«APPROVED»
Member of the Management Board,
Vice-Rector for Academic Affairs
NJSC «Al-Farabi KazNU»
_____ Kazmagambetov A.G.
«__» _____ 2025

The program of
the entrance exam for the group of educational programs of the Faculty of Information Technology
Bachelor's degree
for foreign citizens to study on a paid basis

1. General Provisions

1.1. The program was drawn up in accordance with the Order of the Minister of Education and Science of the Republic of Kazakhstan dated October 31, 2018, No. 600 «On approval of the Model Regulations for admission to studies in educational organization, implementing educational programs of technical and vocational education» (hereinafter – the Standard Rules).

1.2. Entrance exams for bachelor's degree programs consist of two stages:

- ✓ At the first stage, foreign applicants take a test on general education subjects on the respective platform;
- ✓ At the second stage, they undergo testing to determine their proficiency level in the language of instruction.

1.3 The entrance exams are conducted in the form of testing for the following groups of educational programs:

- ✓ 6B06104 – Computer Science
- ✓ 6B06103 – Computer Engineering
- ✓ 6B06102 – Information Systems
- ✓ 6B06107 – Data Science
- ✓ 6B07113 – Intelligent Control Systems
- ✓ 6B06301 – Information Security Systems

1.4 In case an international applicant is unable to come to the University to take the entrance exam in the form of testing, they have the opportunity to take it online.

1.5 Selection for admission of international applicants to bachelor's degree programs through testing is assessed on a 100-point scale.

1.6 Following the entrance exam for bachelor's degree programs, a test results sheet is compiled in the established format, which is signed by the management of the Department of Internationalization and Recruitment of Foreign Students.

1.7 Appeals regarding the results of the testing are allowed within 24 hours.

1.8 An appeals commission is established by the rector of al-Farabi Kazakh National University for the period of exams. The appeals commission for admitting international applicants to KazNU includes employees of the Department of Internationalization and Recruitment (hereinafter referred to as the DIR) and the teaching staff of KazNU.

1.9. The decision on admission is reviewed by the competition commission for the enrollment of international applicants and is documented by a protocol through the "Salem office" system.

1.10. Retaking the entrance exam is not allowed.

2. Conducting the entrance exam in 2025

2.1. Testing is conducted in Russian, Kazakh, and English languages, including questions on relevant subjects (Mathematics/Computer Science) within the framework of the general education school program on website (https://welcome.kaznu.kz/ru/26848/page).

2.2. An indicative list of topics in computer science for entrance exams in the format of testing:

1. Computer architecture (processor, RAM, input/output devices)
2. Binary and hexadecimal number systems
3. Logical operations (AND, OR, NOT) and the basics of Boolean algebra
4. Coding and processing of information
5. The concept of an algorithm, properties of algorithms
6. Basic data structures (arrays, lists, trees, graphs)
7. Sorting and searching algorithms
8. Basics of programming languages (Python, C++, Java, etc.)
9. Recursion and Iteration
10. OSI and TCP/IP models
11. Basic network protocols (HTTP, FTP, DNS, DHCP)
12. Basics of the Internet and Web Technologies
13. Cybersecurity (encryption, authentication, data protection)
14. Fundamentals of Relational Databases
15. MS Access, SQL (basic commands: SELECT, INSERT, UPDATE, DELETE)
16. Data normalization
17. Functions and types of operating systems (Windows, Linux, macOS)
18. Processes and multitasking
19. File systems

2.3 List of recommended literature for preparation:

1. Trofimova, T.I. Course of physics / T.I. Trofimova. -Moscow: Akademiya, 2006.-560 p.
2. Detlaf, A.A. Course of physics / A.A. Detlaf, B.M. Yavorsky -Moscow: Higher School, 2002. -718 p.
3. Omelchenko, V.P. Physics: a textbook / V.P. Omelchenko, G.V. Antonenko. – Rostov-on-Don: Phoenix, 2005. -318 p.
4. Grabovsky, R.I. Course of physics / R.I. Grabovsky. –St. Petersburg: Lan, 2006.-608 p.
5. Shubin, A.S. Course of general physics. Textbook for engineering and economic specialties of universities / A.S. Shubin. – Moscow: Higher School, 1976. -480 p.
6. Trofimova, T.I. A short course in physics: a textbook for universities / T.I. Trofimova. – Moscow: Higher School, 2006. -352 p.
7. Saveliev, I.V. Course of general physics: in 3 volumes / I.V. Saveliev. –St. Petersburg: Lan, 2006. -3 vol.
8. Voronov, V.K. Modern physics: a textbook / V.K. Voronov. –Moscow: KomKniga, 2006. -512 p
9. Bavrin, I. I. Mathematics for technical colleges and technical schools: textbook and workshop for secondary vocational education / I. I. Bavrin. – 2nd ed., ispr. and add. – Moscow: Yurayt Publishing House, 2019. – 397 p.

10. Shipachev, V. S. Mathematics: textbook and workshop for secondary vocational education / V. S. Shipachev ; edited by A. N. Tikhonov. – 8th ed., reprint. and additional – Moscow: Yurait Publishing House, 2019. – 447 p.

11. Bogomolov, N. V. Mathematics. Tasks with solutions in 2 hours. Part 1: a textbook for secondary vocational education / N. V. Bogomolov. – 2nd ed., ispr. and add. – Moscow: Yurayt Publishing House, 2019. – 439 p.

12. Bogomolov, N. V. Mathematics: textbook for applied bachelor's degree / N. V. Bogomolov, P. I. Samoylenko. – 5th ed., reprint. and additional – Moscow: Yurait Publishing House, 2019. – 401 p.

13. Bogomolov, N. V. Mathematics. Tasks with solutions in 2 hours. Part 2: a textbook for applied bachelor's degree / N. V. Bogomolov. – 2nd ed., ispr. and add. – Moscow: Yurayt Publishing House, 2019. – 320 p.

14. Tatarnikov O. V. Mathematics for economists. Workshop: textbook for academic undergraduate studies / O. V. Tatarnikov [et al.]; edited by O. V. Tatarnikov. – Moscow: Yurait Publishing House, 2019. – 285 p.

15. Information protection. / Sat. Ed. Vasilyeva B.M., 2002.

16. Maftik S. Protection mechanisms in computer networks. 1993.

17. How to resist a virus attack. The user's reference book. / Ed. Zegzhda, Meshkova et al., 1995.

18. Kaspersky E. 2000 년, 2000 년, 2000 년, 2000 년

19. Frolov A.V., Frolov G.V. Caution: computer viruses. (PC – Step by step, vol. 5), 1996.

20. Weiner R. Turbo C language, 1991, 384 p.

21. Turbo C programming technique, 1991,227 p.

22. Kryachkov A.V., Sukhinina I.V., Tominin V.K. Programming in C and C++ practicum, 2000, 344 p.

23. Samuel P. Harbison, Guy L. Steele. The C programming language. Translated from English. –M.: OOO "Binom-Press", 2004. -528 p.

24. Pavlovskaya T.A., Shchupak Yu.A. C/C++. Structural and object-oriented programming: A practical course. -St. Petersburg: Peter, 2010.-352 p.

25. Shimanovich E.L. C/C++ in examples and tasks.-Mn.: New Knowledge, 2004. -528s.

26. Date K. Introduction to database systems. M., Nauka, Main publishing House of Physics. References, 1980.

27. Kramm R. dBaseII and dBaseIII database management systems for personal computers. M., Finance and Statistics, 1988.

28. Ozkarahan E. Database machines and database management. M., Nauka, 1989.

29. Anokhin M.I., Varnovsky N.P., Sidelnikov V.M. Yashchenko V.V. Cryptography in banking. M.: MEPhI, 1997.

30. Vinogradov I.M. Fundamentals of number theory. M.: Nauka, 1972.

31. Feistel H. Cryptography and computer privacy. Scientific American. 1973

32. Ахо Альфред В., Хопкрофт Джон, Ульман Джеффри Д. Data structures and algorithms 2003

33. Antoine Joux. Algorithmic Cryptanalysis, 2009.

3. Criteria for evaluating the entrance exam for admission to the bachelor's program for foreign citizens on a fee-paying basis:

3.1 Selection for admission of foreign applicants to bachelor's degree programs through testing is assessed on a 100-point scale. A minimum of 65 points is required for admission on a fee-paying basis to the bachelor's program.

3.2 At the first stage of preliminary selection for bachelor's degree programs, applicants take a test covering materials on general education disciplines related to the chosen specialty. The test consists of 100 questions (20 questions per test, with 5 points awarded for each correct answer).

3.3 To pass the test successfully, a foreign applicant must correctly answer at least 13 out of 20 questions, which is equivalent to 65%, regardless of the language chosen for testing.

3.4 At the second stage of selection for bachelor's degree programs, applicants take a language proficiency test:

- ✓ For programs with English as the language of instruction, applicants must correctly answer at least 21 out of 30 questions, which is equivalent to 70%;
- ✓ For programs with Russian or Kazakh as the language of instruction, applicants must correctly answer at least 15 out of 30 questions, which is equivalent to 50%.