Ministry of Education and Science of the Republic of Kazakhstan Kazakh National Research Technical University after K.I. Satpayev»

Mining and Metallurgical Institute named after O. A. Baikonurov

APPROVED BY

Director of MMI

_____ K.B. Rysbekov

«___» _____2022.

Educational program development plan

7M07103 – Materials science and technology of new materials

(Master's degree)

Almaty 2022

The department plans to train specialists in 7M07103 - Materials Science and Technology of New Materials, which, due to their versatility, can find application in the advanced sectors of the national economy.

The objects of professional activity of graduates are:

- research institutes and centers, technology parks.
- machine-building plants producing various equipment, machine parts, machine-building products;
- design, design and technological organizations;
- metallurgical and enrichment enterprises;
- chemical enterprises.

Graduates of the specialties are currently working in leading research institutes, industries, government agencies, teaching at universities, having a master's degree.

The main planned activities for the OP:

1. Within the framework of the research work of the MNiIF department, the creation of scientific schools, strengthening and further conducting within the framework of scientific programs in the direction of new research materials of the Institute in areas.

2. Further development of international cooperation with universities near and far abroad, with the conclusion of contracts in the field of research, academic mobility of students, exchange of experience and advanced training of the teaching staff of the department. (2022-2023).

3. Strengthening the educational, methodological and scientific and technical mobility of education through the use of interactive technologies in the self-training of teachers and students, as well as in the conduct of all types of training sessions. (2022-2023).

4. Expansion and updating of the educational and laboratory base of the department through:

- equipping the laboratory base of the department with research equipment, equipment, installation, etc.
- concluding a cooperation agreement and opening a branch of the department with leading research institutes for conducting some types of practical and laboratory classes on the basis of this research institute, which uses modern technology in the production of nanomaterials and is equipped with advanced research equipment, conducting joint research work, preparing and conducting scientific projects;
- conclusion of cooperation agreements between KazNITU named after. K.I. Satpaev and leading research institutes in order to open training and production centers in the future for introducing innovative forms of achievements in the field of new materials and technologies into the educational process, practical acquaintance with new technologies and types of research equipment, conducting lectures, practical and laboratory classes, etc.
- Creation of the laboratory "Nanomaterials and Nanotechnologies", which will be organized on the basis of the Laboratory for Engineering Use. The laboratory will allow to carry out work on obtaining materials and coatings with nanosized particles for use in the production of solar panel elements.
- the opening of the Competence Center will be an important step in the

development of advanced analysis technologies and will contribute to the training of qualified specialists who meet the requirements of modern high-tech research institutes and industry. The study of Thermocalc programs will be included in the training program for undergraduates, which allows them to carry out research work at a high technical level.

5. Attracting doctoral students to participate in scientific conferences organized by the MNiIF department, leading departments of the institute, publishing their articles in collections of reports.

6. Strengthening the work on monitoring the research and innovation activities of the department, analyzing the implementation of research and development by the faculty of the department.

7. Further strengthening of work on the preparation of projects for participation in various competitions for grant, program-targeted financing and other competitions held within the framework of scientific research.

8. Creation of a program to attract and recruit strong bachelors for master's studies. Development of a program to attract strong graduates of specialized specialties and industry employees to the university for a master's degree in the specialties of the department.

9. Coordination of supply and demand for graduates. Creation of sectoral working groups to determine sectoral needs by specialty at the regional level. Development of an action plan to collect data according to needs.

10. Development of an education program on the example of the world's leading practices. Development of curricula for doctoral studies on the example of the best world practices. Implementation of enhanced research practice. Drawing up an internship program together with employers. Implementation of an annual process of approving the topic and writing a master's thesis together with research institutes and enterprises on topics related to the narrow problems of new materials for their further solution.

11. Professional development of teaching staff. If necessary, attract the target number of teaching staff. Conclusion of agreements with partner universities for conducting advanced training courses for teaching staff. Sending teachers to advanced training courses in foreign partner universities. Conclusion of contracts with companies for internships of the teaching staff of the university. Strengthening the practical qualifications of teaching staff. Development of an internship program together with research institutes and enterprises, taking into account the requirements of teaching staff and the specifics of research institutes and enterprises. Involvement of employees of specialized research institutes in teaching. Improving the qualifications of teaching staff in the study of English for teaching specialized disciplines in the master's program.

12. Development of the material and technical base of the department. Approval of the list of necessary equipment for the training of scientific personnel for various industries.

13. Development of a program for quality employment. Development of a system for informing graduates and employers about vacancies and candidates. Development of a system for informing employers about possible candidates, their

achievements and skills.