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| Educational program | 7М01502 Physics |
| EP purpose | Provide training for teachers of physics disciplines for the system of higher, postgraduate education and the research sector with in-depth scientific and pedagogical training |
| EP type | Acting |
| Level on NQF | 7 |
| Level on SQF | 7 |
| The awarded academic degree | Master |
| Period of study | 2 |
| Volume of the credits | 120 |
| Language of education | Kazakh, Russian, English |
| Date of approval of the OP at the Board meeting | 06.04.2022 (protocol No. 10) |
| Professional standard | Pedagogue |

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| № | Learning outcomes: |
| 1 | To identify, transfer skills of systemic vision and systemic thinking that contribute to the rapid and effective solution of intellectual and practical problems as a scientist and educator of specialties, readiness for active social mobility, organization and management of research and innovation work; |
| 2 | Is able to analyze, verify, assess the completeness of information, if necessary to complete and synthesize incomplete information; work with information sources and authentic scientific literature in a foreign language on the theme of dissertation research, apply knowledge of theoretical and experimental foundations of physics and physics teaching technologies in English; |
| 3 | Identify the psychological component of the management process, identify and analyze the psychological features of the effectiveness of management in education; |
| 4 | Apply knowledge of philosophical problems of natural science, meaningfully operate with philosophical categories in professional activity; |
| 5 | Is able to reflect (evaluate and process) mastered scientific methods, methods of activity and the main directions of development of physical science and the most important stages of its evolution, possess the skills of correct verbalization, meaningful description of observations, interpretation of the meaning of new phenomena in physical systems; |
| 6 | Apply differential equations to the solution of various physical problems, use the means of differential equations for processing, analyzing and systematizing information on the topic of research, and use mathematical literature if necessary; |
| 7 | Is able to apply physical methods of theoretical and experimental research in the field of natural science disciplines, to identify the natural science content of the problems arising in the course of professional activity; to apply the basic laws of natural science, methods of mathematical analysis and modeling; |
| 8 | Describe the current state and methods of research in the field of solid state physics, thermodynamics and statistical physics, demonstrate basic knowledge about the processes of heat and mass transfer, physical and mathematical models of these processes, explain the simplest methods of their application for calculating temperature fields, heat fluxes; |
| 9 | Plan and conduct research, solve the problems of scientific research in the field of nuclear physics and nanotechnology with the help of modern equipment and information technologies using the latest Kazakh and foreign experience. |
| 10 | Analyze and evaluate the value of innovation and innovative pedagogical technologies in education, design the educational process based on new learning concepts; predict the results of activities and plan the process of self-improvement; |
| 11 | To analyze the process of the emergence and development of fundamental ideas, concepts, laws, principles and concepts of physical science, to have an understanding of physics and methods of scientific knowledge in the historical aspect of its development. |
| 12 | Apply remote technologies, virtual learning environments, multimedia and other IT technologies in professional activities; integrate knowledge of the theories of scientific schools, conduct experimental scientific activities, prepare scientific publications, scientific public speeches and use them in professional activities. |