

# Theory and Methods of Training and Upbringing (Physics)

## Far Eastern Federal University

Degree or qualification is awarded: **Candidate of Sciences**

Language of study: **Russian**

Mode of study: **full-time**

Duration: **3 years**

Availability of free education: **yes**

Price: **305 000 rub per year**

Programme webpage at the university website:

<https://www.dvfu.ru/upload/medialibrary/a06/%D0%9F%D0%B5%D1%80%D0%B5%D1%87%D0%B5%D0%BD%D1%8C%20%D0%BF%D1%80%D0%BE%D0%B3%D1%80%D0%B0%D0%BC%D0%BC%20%D0%B0%D1%81%D0%BF%D0%B8%D1%80%D0%B0%D0%BD%D1%82%D1%83%D1%80%D1%8B,%20%D0%BE%D0%B1%D1%8A%D1%8F%D0%B2%D0%BB%D0%B5%D0%BD%D0%BD%D1%8B%D1%85%20%D0%B2%20%D0%BD%D0%B0%D0%B1%D0%BE%D1%80%202020%20%D0%B3%D0%BE%D0%B4%D0%B0.pdf>

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The purpose of the educational program is to achieve the level of competencies necessary for the implementation of professional pedagogical activity at school and at the university and in preparation for the defense of a scientific qualification work (dissertation) for the degree of candidate of sciences in the dissertation council on pedagogical sciences functioning at the FEFU, School of Natural Sciences.

The objectives of the educational program are:

1. Preparation for research activities in the field of psychological and pedagogical problems in higher (university) and secondary (school) natural science education with focuses on: interdisciplinarity and meta-subject matter of physical content; on the development of cognitive and digital learning technologies, allowing to create knowledge as a developing construction of logically complete semantic structures; as well as on mathematical modeling of educational tasks using graph and information models of subject connections.
2. Preparation for teaching activities in professional and educational institutions (from school to university), which is aimed at studying: methods of motivating students for learning activities, including those who are lagging behind and students with mental retardation; studying the possibilities of using digital platforms, and on-line learning methods of teaching physics. 3. Development of the teacher's professional competencies, including the main one - the ability to demonstrate knowledge of the content of the taught discipline - physics.
3. The area of professional activity of students, who have mastered the postgraduate program, includes: the study of psychological and pedagogical processes in teaching physics, teaching physics and other natural science disciplines at different educational levels; development and use of pedagogical technologies (including online) for teaching physics, solving problems of education, science, culture and social sphere.

The objects of professional activity of graduates who have mastered the postgraduate program are: innovative methods and technologies of teaching physics, modeling the content of a physics training course using information model of inter- and intra-disciplinary connection, educational and management

systems, processes of teaching, upbringing, development, socialization, pedagogical expertise and monitoring.

The types of professional activities of postgraduates are: science and management activities in the field of education and the social sphere; teaching activity on Physics and other nature science subjects at school and at the university.

The relevance and specificity of the educational program "Theory and Methods of Teaching and Upbringing (Physics)" is due to the demand in the field of education for specialists who are ready and able to effectively combine professional activities in practical and scientific fields, creative, with a natural-scientific outlook, capable of analyzing and synthesis to develop strategy for achieving the goal and find non-standard ways of its optimal implementation.

Disciplines of the variable part of the program ("Theory and methods of teaching and upbringing (physics)", "Cluster methods and quantitative models in teaching physics", "Statistical processing of the results of pedagogical research (nonparametric methods)", "Methodological aspects of teaching physics", "Psychology in methods of teaching physics", "Qualimetric methods and assessment of the quality of training") contribute to the formation of professional competencies of a post-graduate in accordance with the modern view of pedagogical dissertation research, where elements of information and percolation theories, methods of mathematical modeling, cognitive and digital technologies are used, as well as in accordance with the need of employers for specialists who demonstrate knowledge of the content of the taught discipline, capable to implement off-line and online training (universities, special, professional and educational institutions, educational management organizations, etc.).

The main areas of professional activity of the graduate of the postgraduate study on the educational program "Theory and methods of teaching and education (Physics)" are:

professional and general educational institutions of all levels of education of any form of ownership and departmental subordination. (general and specialized schools, technical, humanitarian, classical universities), educational authorities, academic and departmental research organizations.

### **Specializations within this programme**