

Heat Supply, Ventilation, Air Conditioning, Gas Supply and Lighting

Far Eastern Federal University

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

Language of study: **Russian**

Mode of study: **full-time, part-time**

Duration: **4 years**

Availability of free education: **yes**

Price: **320 000 rub per year (full-time) / 160 000 rub per year (part-time)**

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%D0%BF%D1%80%D0%BE%D0%B3%D1%80%D0%B0%D0%BC%D0%BC%D0%B0%D1%81%D0%BF%D0%B8%D1%80%D0%B0%D0%BD%D1%82%D1%83%D1%80%D1%8B,%D0%BE%D0%B1%D1%8A%D1%8F%D0%B2%D0%BB%D0%B5%D0%BD%D0%BD%D1%8B%D1%85%D0%B2%D0%BD%D0%B0%D0%B1%D0%BE%D1%80%202020%D0%B3%D0%BE%D0%B4%D0%B0.pdf>

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Heat supply, ventilation, air conditioning, gas supply and lighting is a field of science and technology that is engaged in the development of scientific and technical foundations for creating a microclimate in buildings, ensuring the proper temperature and humidity, air, acoustic and light conditions in buildings by creating optimal technical solutions for heating systems, cooling, ventilation, air conditioning, heat and gas supply. This scientific specialty contains scientific and technical research and development in the field of rational design of these systems, based on the use of technical, economic and mathematical and other modern scientific methods.

The value of solving scientific and technical problems of specialty 05.23.03 consists in the improvement and optimization of heating, cooling, ventilation systems and the creation of the most perfect and reliable temperature-humidity, acoustic and lighting regimes in the premises of buildings and structures, the development and optimization of production, transmission and use systems thermal energy and heat carriers, including non-traditional sources of thermal energy. In solving the problems of ensuring the environmental safety of ventilation emissions and waste water containing oil products.

Research area:

- improvement, optimization and increase of reliability of heat and gas supply, heating, ventilation and air conditioning systems, methods of their calculation and design. Use of non-traditional energy sources;
- technological issues of heat and gas supply, ventilation and air conditioning;
- Creation and development of effective methods of calculation and experimental research of heat supply, ventilation, air conditioning, gas supply, lighting, noise protection systems;
- climatological support of buildings, climatic effects and the development of their design characteristics;
- thermal, air and humidity regimes of buildings for various purposes, heat and mass transfer in fences and development of methods for calculating energy savings in buildings4
- lighting, acoustic modes in the premises of buildings and their optimization;
- protection from noise and vibration of sanitary and engineering equipment of buildings (sound insulation, sound absorption, shielding);

- insolation and sun protection of buildings;
- optimization of parameters that provide light comfort in buildings.

Each educational cycle of the educational program "Heat supply, ventilation, air conditioning, gas supply and lighting" has a basic part and a variable part set by the Federal State Educational Standard. The variable part makes it possible to obtain in-depth knowledge, abilities and skills for successful professional activity. The research work of graduate students is based on studying the possibilities of using advanced technologies in engineering systems, developing modern systems and devices with high efficiency, taking into account regional climatic features, and developing skills for a creative, non-standard approach to solving professional problems.

"Methods for processing and evaluating experimental results" - the purpose of studying the discipline is to get an idea of the basic concepts and principles of an engineering experiment: studying the theory of the similarity of physical processes and the foundations of mathematical modeling, getting acquainted with the basic measuring instruments and methods of experimental research, developing the ability to plan an engineering experiment.

"Integrated modeling of engineering systems" - the purpose of studying this discipline is to master the methods of integrated modeling of engineering systems, to get ideas about the basic methods of modeling heat transfer processes, hydro- and gas dynamics, to build mathematical models of engineering networks and systems, to acquire skills in solving problems of mathematical analysis, as applied to modeling of heat supply, ventilation and air conditioning systems, the formation of prerequisites for computer research of tasks in those areas of research that correspond to the scientific topic of the graduate student.

"Heat supply, ventilation, air conditioning, gas supply and lighting" - the purpose of studying this discipline is to master modern methods of improving and optimizing heat supply, ventilation, air conditioning, gas supply systems, and creating the most perfect and reliable temperature and humidity, acoustic and lighting modes in rooms buildings and structures.

"Technical and economic optimization of the introduction of energy-saving technologies in heat and gas supply systems" - the goal is to gain knowledge about the technical and economic optimization of the implementation of energy-saving technologies in heat and gas supply and ventilation systems, mastering methods for assessing the effectiveness of investments in energy-saving measures, mastering algorithms for the practical application of the theory of evaluating technical and economic solutions implementation of energy-saving measures based on the experience of existing facilities, gaining knowledge about the technical and economic efficiency of energy-saving technologies in construction.

"Trends in improving the quality of heat supply" - the goal of the discipline is: the acquisition of systematic knowledge by students in the field of improving the quality of heat supply, i.e. providing heat to residential and public buildings and industrial enterprises; acquisition of skills to optimize design solutions and operating modes, taking into account the reliable functioning of systems; mastering the algorithms of automation of systems, heat points and the implementation of automated control of technological processes of heat supply; formation of skills in choosing methods for assessing the economic efficiency of the proposed solutions in the field of heat supply.

The types of professional activities for which graduates who have mastered the postgraduate program are preparing:

- research activities in the field of technical sciences;
- teaching activities on educational programs of higher education.
- Production activities related to the design and operation of engineering systems of buildings and structures

Specializations within this programme