

**Don State Technical University
HIGHER EDUCATION SYLLABUS IN**

1.1.Name of the study programme (in the original language)	Материаловедение
1.2.Name of the study programme in English	Materials Science
1.3.Qualification (degree)	researcher, lecturer and researcher
1.4.Mode of education	full-time study, part-time study
1.5.Educational department	Matematics "Machine-building technologies and equipment" Department of "Physical and Applied Materials Science"
1.6.Workload (ECTS)	240
1.7.Duration of education	4 years (full-time study) 5 years (part-time)
1.8.Field	Materials technology
1.9.Profile	Materials Science
1.10.Code of the field	22.06.01
1.11.Teaching languages	Russian
1.12.Other necessary languages	
1.13.Approved by the educational department (date)	
1.14.Admission requirements	Diploma of higher education (specialist's or master's degree), entrance examinations (foreign language, philosophy, special discipline)

2.Aim of the programme

The purpose of the program is the formation of special competencies that allow solving the problems of creating innovative and resource-efficient technologies for the development, production and use of modern inorganic materials with specified technological and functional properties, composite, hybrid and intelligent materials, as well as nanomaterials, films and coatings for activities in the areas of general engineering, automotive and aircraft construction, electronic, sports and consumer equipment, nanoindustry.

3.Characteristics of the programme

3.1.Main disciplines/modules	Materials Science. Research project Foreign language. History and philosophy of science. Psychology and pedagogy of higher education.
3.2 Elective disciplines	Development and implementation of educational programs on basis of Federal Educational Standard. Management and marketing in sciences society.

4.Employment and further education opportunities

4.1 Job opportunities	research activities in this area; teaching activities on educational programs of higher education.
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4.2 Further studies

5. Programme learning outcomes

Independently use modern ideas of materials science in the analysis of the impact of micro- and nanoscale on the mechanical, physical, surface and other properties of materials, the interaction of materials with the environment, fields, energy particles and radiation.

2. To carry out patent search on the set professional problem, to draw up documentation on the results of inventive activity, to form a Bank (patents, communications and applications) of individual and collective intellectual property.

3. Theoretically, to justify and optimize the technological processes of obtaining selective materials and the production of new products from them, taking into account the consequences for society, economy and the environment.

4. To develop the process, tooling, documentation, routing and transaction routing for the manufacture of new products from advanced materials.

5. To organize works on improvement, modernization, unification of manufactured products, their elements, to develop draft standards and certificates, to carry out certification of materials, technological processes and equipment, to participate in activities to create a quality system.

6. To conduct author's supervision during manufacture, mounting, adjustment, testing and commissioning in ex-the operation of manufactured materials and products.

7. To assess investment risks in the implementation of innovative materials science and design and technology projects and the introduction of promising materials and technologies.

8. To participate in scientific and technical conferences and seminars on the problems of technological modes of processing of materials, providing the necessary quality of products, methods and means of determining the complex of physical and mechanical characteristics of materials, corresponding to the purposes of their practical use.

6. Education style (Teaching, learning, assessment)

6.1. Learning and teaching approaches: lecture training system; information and communication technologies; project method; research methods

6.2. Assessment methods: case study method, multimedia presentations, reports, annotating, creative assignments

7. Contact information (responsible chair, head of the programme)

Department of "Physical and Applied Materials Science".

The head of the program is Doctor of Technical Sciences, Professor Pustovoit Viktor Nikolaevich, tel. (863) 2738365