

EDUCATIONAL PROGRAM

AREA OF KNOWLEDGE	13 MECHANICAL ENGINEERING
SPECIALITY	132 MATERIALS SCIENCE
EDUCATIONAL LEVEL	THIRD (EDUCATIONAL-SCIENTIFIC) LEVEL

Profile of the program Doctor of Philosophy in the field of Material Science	
Diploma type and program volume	Doctor of Philosophy diploma, first degree, 4 academic years, 60 credits of ECTS
Higher educational institution	Chernihiv National University of Technology, Chernihiv
Accrediting institution	Ministry of Education and Science of Ukraine, Ukraine Peremohy av., 10, Kyiv, 01135
Period of accreditation	2016 year
Program level	QF for EHEA - third cycle, EQF for LLL - 8 level; NRC of Ukraine - level 8
A The purpose of the program	
	To ensure on the base of master's degree the training of scientific and pedagogical staff in the field of materials science through the attainment of competences sufficient to perform original research, results of which have scientific novelty, theoretical and practical significance, and their support in the preparation and thesis defense.
B Characteristics of the program	
1	Subject area (branch of knowledge) Materials Science (13 MECHANICAL ENGINEERING)
2	<p>Program focus: General / Special</p> <p>The third (educational and scientific) higher education level according to the Law of Ukraine "On Higher Education", the eighth qualification level of the National Qualifications Framework.</p> <p>General Investigation of regularities and development of scientific and theoretical foundations and methods etc.:</p> <ul style="list-style-type: none"> - ensuring efficient and/or sustainable operation of the objects of the machine-building and construction industries; - development of the material and technical base of the machine-building and construction complexes of Ukraine - the network of enterprises; - the use of expedient and grounded technologies for the formation of new materials possessing unique functional, physical and mechanical, operational and technological properties, optimal cost and environmental cleanliness; - coordinated interaction of different types of enterprises; - rational organization: transportation; processing; service; - effective management of the objects of the machine-building and construction industries. <p>Special Establishment of the regularities of physical-chemical and physical-mechanical processes occurring at the boundaries of the section in heterogeneous structures. Development of scientific bases for the selection of materials with specified properties in relation to the specific conditions for the manufacture and operation of products and structures. Development of physical-chemical and physical-mechanical processes of formation of new materials possessing unique functional, physical-mechanical, operational and technological</p>

		<p>properties, optimum cost and environmental safety.</p> <p>Establishment of the laws and criteria for assessing the destruction of materials from the effect of mechanical loads and the environment.</p> <p>Development and improvement of research methods and control structures, trial and determination of physical and mechanical properties and performance on samples and products.</p> <p>Theoretical and applied problems of standardization of new materials and technological processes of their production and processing. Quality management systems, certification and accreditation of materials and technological processes.</p> <p>Development and computer realization of mathematical models of physical-chemical, hydrodynamic, thermal, chemorheological and deformational transformations in the production, processing and operation of various materials.</p> <p>Computer design of composite materials.</p> <p>Computer analysis and optimization of processes of obtaining and exploiting materials.</p> <p>Development of ways to increase the corrosion resistance of materials in different operating conditions.</p> <p>Development of coatings of various purpose (hardening, wear-resistant and others) and their quality management.</p> <p>Development of forecasting and estimation methods of residual resource of materials in mechanical engineering.</p> <p>Development of scientific basics of complex use of raw materials, local natural resources and man-made waste materials for building products and designs.</p>
3	Program orientation	<p>Research and applied.</p> <p>Research of the fundamental relations and structure of materials with complex physical, mechanical and performance properties to ensure reliability and durability of materials and products.</p>