

**LEVELS (QUALIFICATIONS) DESCRIPTORS OF "PHYSICS" SECTORIAL QUALIFICATIONS FRAMEWORK
FOR HIGHER EDUCATION OF THE REPUBLIC OF ARMENIA**

EDUCATIONAL LEVEL (QUALIFICATION)	1 ST (BACHELOR)	2 ND (MASTER)
General description (characteristic) of the Qualification	<ul style="list-style-type: none"> A Bachelor's degree is awarded to individuals who have knowledge and skills in a comprehensive and coordinated set of fields for making professional work and/or continuing education. 	<ul style="list-style-type: none"> A Master's degree is awarded to individuals who have deep and specialized knowledge and skills to conduct professional practice and research and/or to continue their education.

KNOWLEDGE	1. Knowledge and understanding	<ul style="list-style-type: none"> • Demonstrates knowledge and understanding of basic mathematics and related subjects (including mathematical methods for physics; computing; numerical analysis). • Demonstrates knowledge and understanding of general physics (introduction to physics: classical mechanics, molecular physics, electricity and magnetism, optics, atomic and nuclear physics) and astrophysics. • Demonstrates knowledge and understanding of experimental methods (development of measurement methods and instrumentation, measurement theory and treatment of experimental errors). • Demonstrates knowledge and understanding of basic elements in theoretical physics (analytical mechanics, classical electromagnetism and relativity, quantum mechanics, statistical physics and thermodynamics). • Demonstrates knowledge of modern educational technologies in physics. • Demonstrates knowledge of elements of applied and modern physics (microwave physics, micro and nanoelectronics, material science, laser physics, etc.). 	<ul style="list-style-type: none"> • Demonstrates knowledge and understanding of experimental methods at advanced level (modern methods of measurement and computing automatization, data analysis, scientific methodology and experimental design). • Demonstrates advanced knowledge and understanding of modern methods of theoretical physics (advanced mathematical methods for physics; computing algorithms; advanced numerical analysis and computer modeling). • Demonstrates knowledge and understanding of one or several specialized courses of modern physics (laser physics, condensed matter physics, nuclear and particle physics, nanophysics, biophysics, microwave physics, astrophysics and cosmology, quantum field theory). • Demonstrates knowledge of actual tendencies of the specialty development and implementation ways. • Demonstrates knowledge of related subjects connected with new general scientific research areas (life science, energy, IT, economics, etc.).
SKILLS	2. Applying knowledge and understanding	<ul style="list-style-type: none"> • Is capable to analyze the basic experimental facts of physics. • Is able to solve the main problems in the framework of classical and quantum physics. 	<ul style="list-style-type: none"> • Is able to analyze the basic experimental facts of modern physics. • Is able to solve the intersubjective problems.
		<ul style="list-style-type: none"> • Is able to apply the acquired knowledge and methods in other specialty areas (chemistry, biology, information 	<ul style="list-style-type: none"> • Is able to transfer the acquired knowledge and to integrate into the related areas of specialization (industrial

	3. Communication, ICT and numeracy skills	<p>and telecommunication technologies, banking, engineering, etc.).</p> <ul style="list-style-type: none"> • Is able to apply special program packages for description of different physical and related subjects (C++, Mathematics, COMSOL, etc.) • Is able to use technical English for academic mobility and possibility of working with educational literature and other sources. 	<p>placements and positions, software development, telecommunications, banks, insurance companies, self-employment, technical consultancy, etc.).</p> <ul style="list-style-type: none"> • Is able to participate in the discussion and formulation of new scientific issues. • Is capable of teaching some courses and laboratory works. • Is able to use deep knowledge of technical English for professional communication and academic mobility, as well as possibility of working with scientific literature. • Is capable of participating and reporting in scientific conferences, seminars and schools.
	4. Generic cognitive skills (including making judgments)	<ul style="list-style-type: none"> • Is able to teach the basics of physics in the middle and high schools. • Can apply critical thinking, analysis and judgement to the problems of the field. 	<ul style="list-style-type: none"> • Is able to self-employed scientific work. • Can apply creativity to identify and provide different solutions to the problems of the field.
COMPETENCE	5. Autonomy and responsibility (including learning skills)	<ul style="list-style-type: none"> • Is capable to work independently with educational and scientific literature, as well as documents. • Is able to work with the team. 	<ul style="list-style-type: none"> • Is able to initiate and lead development projects. • Is able to create and manage a reserch team.
Workload in ECTS credits		180-240	60-120