



IV. Internship				V. Research			VI. Final Certification
Internship Title	Semester	Weeks	Credits	Semester	Weeks	Credits	Master's Thesis
Research	4	8	12	4	12	18	

### VIII. Competence Matrix

Competence Code	Competence	Module Code, Discipline Code
UC-1	Use the scientific cognition techniques in research activities, to generate and to realize innovative ideas	1.1, 1.2, 1.3, 2.7, 2.9.1
UC-2	Solve research and innovative problems using advanced information technologies	1.1, 1.2, 1.3, 2.7, 2.9.2
UC-3	Ensure communication, demonstrate leadership skills, be capable of team building and developing strategic goals and objectives	1.1, 1.2, 1.3, 2.1
UC-4	Improve innovation receptivity and innovation skills	1.1, 1.2, 1.3
UC-5	Predict the conditions of professional activity and solve professional problems in conditions of uncertainty	1.1, 1.2, 1.3
UC-6	Communicate in a foreign language in an academic, scientific, and professional environment for research and innovation activities	2.8.1, 2.9.3
UC-7	Apply psychological and pedagogical methods and information and communication technologies in education and management	2.1
DPC-1	To master modern computational methods of electrodynamics for scientific research and innovation activities in the field of radio physics	1.1.1
DPC-2	Be able to use quantum and optical technologies to solve scientific and practical problems	1.1.2
DPC-3	Be able to use information technology and hardware and software for design, development and research of electronic systems	1.2
DPC-4	Use machine learning algorithms and data mining methods to solve scientific and practical problems	1.3.1, 1.3.2
DPC-5	To master methods of designing information security and information protection systems, methods of risk assessment, monitoring and auditing of information security	1.3.3
SC-1	Be able to create models, perform analysis and synthesis of complex systems and processes	1.3.4
SC-2	Use methods of numerical modeling of materials and structures for solving applied problems in microelectronics	2.2
SC-3	Use modern methods of studying the elemental, phase composition and structure of materials of micro- and optoelectronic systems	2.3.1
SC-4	Be able to evaluate the possibility of using promising materials for opto-, micro- and nanoelectronics in various elements, devices and new generation electronics.	2.3.2
SC-5	Use knowledge of the interaction of materials with the space environment, the basic principles of creating modern materials and coatings for the design of aerospace systems	2.3.3
SC-6	Be able to use modern technologies and microwave materials with new electromagnetic properties for development and research of microwave systems and solution of applied problems	2.4
SC-7	Be able to use modern technologies for the creation of micro- and nanostructured materials, the formation of elements and device structures of micro-, nano- and optoelectronics	2.5
SC-8	Apply modern additive and precision technologies, 2D and 3D modeling technologies to create objects with specified properties	2.6.1
SC-9	Use X-ray methods of studying matter to solve urgent problems of the microelectronic industry	2.6.2

Developed on the basis of the Model Curriculum for the specialty 7-06-0533-03 Radiophysics and Information Technology, approved on 18' January 2023, registration No. 7-06-05-014/пр.

<sup>1</sup> – Depending on the level of Russian language proficiency of foreign citizens, the volume of classroom hours may change (increase/decrease (but not less than 140 classroom hours)/exemption from studying the discipline).

<sup>2</sup> – General educational disciplines «Philosophy and Methodology of Science», «Foreign Language», «Information Technologies: Basics» are studied at the choice of a master's student. The study of general education disciplines «Philosophy and Methodology of Science», «Foreign Language» ends by the passing of the candidate exam, the general education discipline «Information Technologies: Basics» – the candidate end-of-term test.

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Recommended for approval by the  
Scientific and Methodological Board of  
Belarusian State University

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