MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE

NATIONAL TECHNICAL UNIVERSITY OF UKRAINE
«IGOR SIKORSKY KYIV POLYTECHNIC INSTITUTE»

APPROVED BY
Academic Council of KPI. Igor Sikorsky
(Protocol No_____ of _____, ____ 20__)
Chairperson of the Academic Council
_____ Mykhailo ILCHENKO

PHYSICAL THERAPY, ERGOTHERAPY
EDUCATIONAL-SCIENTIFIC PROGRAM

Third (Ph.D.) level of higher education
in specialty 227 Physical Therapy, Ergotherapy
Field of knowledge 22 "Health Care"
Qualification: Doctor of Philosophy in Physical Therapy, Ergotherapy

Came into force by Order of the Rector
of the Igor Sikorsky KPI
of _____ No _____

Kyiv - 2020

PREAMBLE

DEVELOPED by the project team:

Project team leader:

Khudetsky Igor Yulianovych, Doctor of Medical Sciences, Professor of the Department of Biosafety and Human Health _____

Project team members:

Popadyukha Yuriy Andriyovych, Doctor of Technical Sciences, Professor of the Department of Biosafety and Human Health _____

Kopochynska Julia Volodymyrivna, Ph.D. in Physical Education and Sports, Associate Professor of the Department of Biosafety and Human Health _____

Glynyana Oksana Oleksandrivna, Ph.D. in Physical Education and Sports, Associate Professor of the Department of Biosafety and Human Health _____

Antonova-Rafi Yuliya Valeriyivna, Ph.D. in Technics, Associate Professor of the Department of Biosafety and Human Health _____

Head of the Department of Biosafety and Human Health

Khudetsky Igor Yulianovych, Doctor of Medical Sciences, Professor

AGREED:

Scientific and Methodical Commission of the Igor Sikorsky KPI in specialty 227 "Physical Therapy, Ergotherapy"
Chairman of the SMCU _____ Igor KHUDETSKY
(Protocol No____ of _____20___)
Methodical council of the Igor Sikorsky KPI
Chairman of the Methodical Council _____ Yuriy YAKYMENKO
(Protocol No ____ of _____ 20___)

TAKEN INTO ACCOUNT:

External approbation of the ESP (feedback and reviews are attached); the proposals of stakeholders are taken into account.

Reviews of external stakeholders:

MARUKHNO Yu.I., Deputy Medical Director for Surgical Work of the Municipal Non-Commercial Enterprise of the Kyiv Regional Council "Kyiv Regional Clinical Hospital", Candidate of Medical Sciences

DONETS R.V., Orthopedist-traumatologist of the Institute of Vertebrology and Rehabilitation

MAMCHUR M.V., Director of the Kinesiotherapy Health Center "Healthy movement"

KHUDOLEY V.Yu., Rector of the Academician Y. Bugay International Scientific-Technical University, Doctor of Economics, Professor

STRASHNY S.A., Director of the Kyiv State Experimental Prosthetic and Orthopedic Enterprise

PASENKO M.V., Graduate student of the 1st year of study, Group BR-91f of the Department of Biosafety and Human Health of the National Technical University of Ukraine " Igor Sikorsky Kyiv Polytechnic Institute"

ESP was discussed after receiving all feedbacks and suggestions from students and graduates and approved at an extended meeting of the Department of Biosafety and Human Health (Protocol No1of August 26, 2020)

ESP was considered and approved by the Scientific and Methodological Subcommission on specialty 227 "Physical Therapy, Ergotherapy" (Protocol No 4 of August 28, 2020)

CONTENT

1. PROFILE OF THE EDUCATIONAL PROGRAM

in specialty 227 "Physical Therapy, Ergotherapy"

1 - General information	
Full name of HEI and institute/faculty	National Technical University of Ukraine " Igor Sikorsky Kyiv Polytechnic Institute", Faculty of Biomedical Engineering
Degree of higher education and name of qualification in the original language	Doctor of Philosophy in Physical Therapy, Ergotherapy Educational qualification - Doctor of Philosophy in Physical Therapy, Ergotherapy
The official name of the educational program	"Physical Therapy, Ergotherapy "
Type of diploma and scope of the educational program	Diploma of Ph.D. The educational component of 57 ECTS credits, training period 4 years The scientific component involves self-interest research and documentation of results in the form of dissertation.
Accreditation	Not accredited. Accreditation is expected in 2021
Cycle/level	NFQ of Ukraine - level 9; FQ-EHEA - the third cycle, EQF-LLL - level 8
Entrance qualification	Master's or specialist's degree,
Language (s) of teaching	Ukrainian, English
The validity of the educational program	Until the next accreditation
Permanent link to the educational program	Osvita.kpi.ua (page "educational programs"), bbzl.fbmi.kpi.ua (page "educational programs")
2 - The goal of the educational program	
Training of highly qualified, competitive, integrated into the European and world scientific and educational space experts of the degree of Doctor of Philosophy in the field of health care in the specialty 227 "Physical Therapy, Ergotherapy", who can solve complex problems in professional and research-innovative activities, that imply fundamental rethinking of existing and creation of new holistic knowledge in health care, in particular in physical therapy, ergotherapy, scientific and pedagogical activities and professional practice, which will make a significant contribution to the	

sustainable development of society through internationalization and integration of education, latest research, and innovative developments and support. public image of the university.	
3 - Characteristics of the educational program	
Subject area (field of knowledge, specialty)	Field of knowledge 22 Health Care Specialty 227 Physical Therapy, Ergotherapy **The object of activity**: innovative approaches and technologies of restoration and/or compensation of disturbances of structures and functions of an organism, improvement of activity and involvement of the person, reaching a maximum level of functioning and self-sufficiency in all aspects of the patient's/client's life through physical therapy, ergotherapy. **The theoretical content of the subject area**: scientific theories of professional and research and innovation activities, strategies, concepts, categories, management in physical therapy, ergotherapy; philosophical paradigms; foreign language; communications media. **Methods, techniques, and technologies**: examination, planning, intervention and control in physical therapy, ergotherapy; general scientific methods of cognition and research activity; statistical methods of analysis; simulation methods; information and communication technologies of research, dissemination, and presentation of research results; technology of teaching activities. **Tools and equipment**: computerized and robotic systems, tools, devices, equipment, and software products commonly used in research; in the course of physical therapy, ergotherapy; during educational activities.
The orientation of the educational program	Educational and scientific
The main focus of the educational program	Formation and development of the necessary competencies for the follow-up professional and scientific activities. It is based on innovative ideas, concepts, paradigms, theories, data of evidence-based medicine and practice in physical therapy and ergotherapy, other results of modern scientific research. Keywords: methodology, educational technologies, scientific activity, physical therapy, ergotherapy, evidence-based medicine, evidence-based practice.
Features of the	The program focuses on research in the areas of physical

educational program	therapy, ergotherapy. The high level of the research part of the training is ensured by scientific schools, the availability of laboratories, cooperation agreements concluded with leading medical, rehabilitation, and research institutions of the Ministry of Health and the National Academy of Medical Sciences of Ukraine.
4 - Graduates' employability and aptitude to further training	
Employability	Graduates can hold positions whose qualification requirements include a doctorate: - research and teaching work in higher education institutions; - research work in research institutions of health care, physical culture, and sports. Graduates can be employed in positions (according to the current Classifier of Professions of Ukraine SC 003: 2010): 2351.1 Researchers; 2310.1 Professors and associate professors; 2310.2 Other teachers of universities and higher education institutions; 2419.3 Professionals of public service and local self-government.
Further training	Improve through lifelong learning for professional growth, support, and competence development. Graduates can continue their education to obtain the degree of Doctor of Science, participate in relevant postdoctoral programs.
5 - Teaching and assessment	
Teaching and training	The general style of training is creatively oriented, aimed at developing the skills of generating new ideas and self-gaining in-depth knowledge. The educational process is carried out based on acmeological, axiological, systemic, competence, personality-oriented, and innovation-informative approaches. A creative training style is used, which stimulates creativity in cognitive activity and initiative, learning through clinical practice. Teaching methods: problem-searching, research, explanatory-demonstration, partial-search, a communicative method with elements of role-playing and business games, method of educational projects. Are implemented: lecture courses, seminars and practical classes (active and interactive business games, presentations, discussions, projects), consultations, independent training in the library funds, use of Internet resources, teaching practice

	in higher education and supervision in clinical institutions, work over the own research. Close scientific guidance and consulting of leading specialists of the department are provided. Writing scientific papers, which are presented and discussed with the participation of teachers and graduate students is planned.
Assessment	Current written and oral forms of knowledge control. Current certifications (reporting) are carried out according to the individual plan of scientific work of the graduate student (2 times a year). Approbation of research results at scientific conferences. Publication of research results in professional scientific publications (at least one in a publication that is a part of the scientometric database Scopus, Web of Science, or other international database defined by the Ministry of Education and Science of Ukraine). Certification is carried out based on the public defense of scientific achievements following the approved procedure.
6 - Program competencies	
Integral competence	Ability to solve complex problems related to the restoration of impaired functions of organs and systems of the body through physical therapy or ergotherapy; ability to carry out health management; scientific and educational activities using the provisions, theories, and methods of biological, medical, technical, pedagogical and social sciences, physical culture, research, innovation, which involves a deep rethinking of existing and the creation of new holistic knowledge and/or professional practice.
General Competences (GC)	
GC 1	Ability to scientific search and formulation scientific hypotheses
GC 2	Ability to abstract thinking, analysis, synthesis, and evaluation of modern scientific achievements, generating new knowledge in solving research and practical problems.
GC 3	Ability to design and perform comprehensive research based on a systems scientific worldview using basic universal methodological principles and knowledge in the field of history and philosophy of science.
GC 4	Ability to present scientific results and conduct oral and written scientific discussions in the state and foreign languages; mastery of scientific terminology
GC 5	Ability to communicate effectively with a professional

	audience in state and foreign languages, to present complex information conveniently and understandably for the total audience orally and in writing
GC 6	Willingness to appreciate and respect cultural, ethnic, religious, and social diversity during professional communication.
GC 7	Willingness to organize the work of the team in solving current scientific and scientific-educational tasks.
GC 8	Ability to carry out educational activities.
GC 9	Ability to plan and carry out personal and professional development.
Professional Competencies of the specialty (PC)	
PC 1	Ability to master modern methods of collecting information for research in physical therapy, ergotherapy, separation of primary and secondary sources, maintaining special documentation, use of technology.
PC 2	Ability to separate the structural elements that form the basis of the system of physical therapy, ergotherapy; apply the knowledge acquired during previous basic and applied research, in a comprehensive analysis of phenomena and processes arising in physical therapy, ergotherapy in Ukraine and other countries.
PC 3	Ability to critically comprehend and verify the assumptions or conclusions made by other researchers, which are considered proven in physical therapy, ergotherapy; ability to adapt scientific activities to changing practical conditions.
PC 4	Ability to use in physical therapy, ergotherapy traditional and latest information and communication technologies, modern computerized, robotic, microprocessor systems and tools and scientific equipment.
PC 5	Ability to analyze the obtained scientific information to predict changes that will occur as a result of physical therapy, ergotherapy; ability to plan research; participate in Ukrainian and international research teams to solve scientific and scientific-educational problems in physical therapy and ergotherapy.
PC 6	Ability to perform original work-up of different groups of the population in physical therapy and ergotherapy; ability to achieve scientific results that create new knowledge, with special attention to current issues/problems and the use of the latest scientific methods and techniques.

PC 7	Ability to formulate and defend the results of their research in scientific discussions; effective professional interaction in a multidisciplinary team.
PC 8	Ability to analyze research results and use them in scientific, educational, and practical activities, to understand their potential consequences, to choose scientifically well-grounded approaches in physical therapy, to organize and ensure management processes taking into account trends in industry reform.
PC 9	Ability to orally and in writing present and discuss the results of research and/or innovative developments in Ukrainian and English; ability to understand and know English-language scientific sources in the field of research.
PC 10	Ability to carry out scientific and pedagogical activities in physical therapy and/or ergotherapy.
7 - Programmatic results of studies (PRS)	
PRS 1	Independently search for information on modern methods of physical therapy and ergotherapy; master the basics of patent search, work with library and information resources
PRS 2	Use traditional and latest information and communication technologies; identify primary and secondary sources.
PRS 3	Identify and analyze system relationships; see contradictions and problems; think independently.
PRS 4	Predict the impact and effect of applied methods, techniques, and technologies of physical therapy.
PRS 5	Independently work with regulations; organize the work of team members in changing conditions; operate in conditions of limited time and resources.
PRS 6	Solve complex tasks and problems that arise in professional activities.
PRS 7	Demonstrate knowledge of the conceptual and methodological principles of solving scientific problems in physical therapy, ergotherapy, and related interdisciplinary areas.
PRS 8	To supplement the system of knowledge in physical therapy and ergotherapy; to use the acquired skills in advanced professional practice and teaching.
PRS 9	Independently select and safely apply appropriate methods of examination in physical therapy, ergotherapy; analyze and interpret the information obtained.

PRS 10	Put forward original approaches and strategies; to select adequate scientific research methods; formulate and solve research problems.
PRS 11	Analyze scientific and methodological information without assistance; identify and analyze system relationships; see contradictions and problems; think independently.
PRS 12	Freely present and discuss with specialists and non-specialists both scientific and applied problems of physical therapy and/or occupational therapy, and research results in state and foreign languages, present them in scientific publications of leading international scientific journals.
PRS 13	Demonstrate the use of information technology and scientific research methods in a professional field that requires updating and integration of knowledge.
PRS 14	Generate ideas, form, and test scientific hypotheses, substantiate conclusions with appropriate results of theoretical and empirical research, determine the patterns inherent in the subject area of physical therapy and ergo therapy.
PRS 15	Analyze the results of scientific research and predict the consequences of their implementation; change technologies of pedagogical and practical activity according to new scientific researches.
PRS 16	Develop and implement a research project (dissertation), which provides an opportunity to rethink existing and create new holistic knowledge and professional practice, to solve significant scientific and practical problems of physical therapy and ergotherapy in compliance with academic ethics and social, economic, environmental, and legal aspects.
PRS 17	Demonstrate the use of technical complexes, systems, and tools, scientific research methods in the professional field, which requires updating and integration of knowledge.
PRS 18	Independently select and safely apply appropriate technical and orthopedic devices for use in physical therapy, ergotherapy.
PRS 19	Independently search for information on modern technical and orthopedic devices for physical therapy and ergotherapy.
PRS 20	Develop and implement research projects following the objectives of the dissertation research, prepare applications for research grants, submit proposals for their funding, register intellectual property rights.

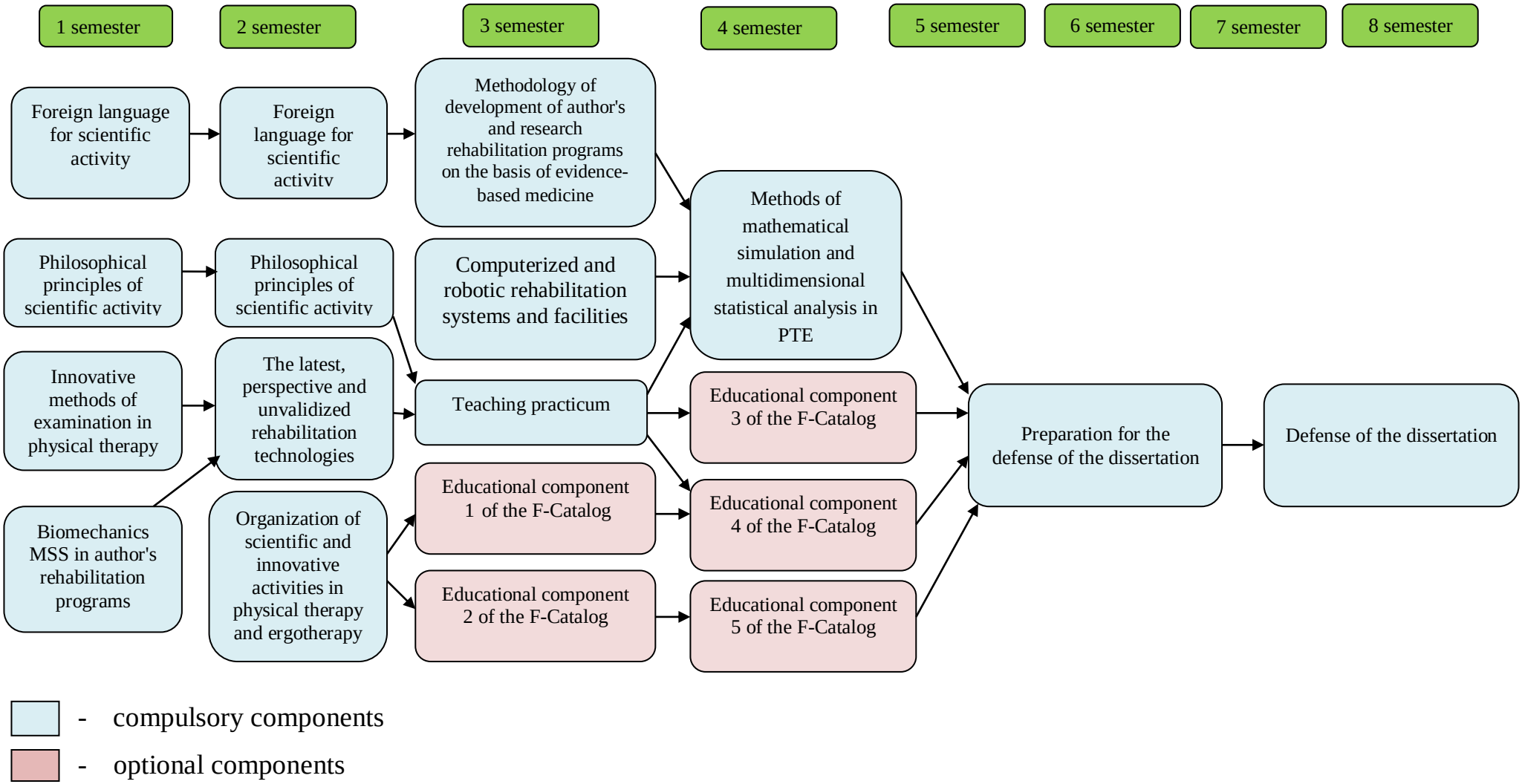
8 - Resource support for program implementation	
Staffing	Research and teaching staff who carry out the educational process to implement the program meet the Licensing Conditions for Educational Activities in the Higher Education, approved by the Resolution of the Cabinet of Ministers of Ukraine dated 30 December 2015 No 1187 (current) in force as of 23 May 2018 No 347.
Logistics	The area of classrooms for the educational process to implement the program, provision of computer workplace and multimedia equipment, social infrastructure meet the requirements for logistics of educational activities of the relevant level of higher education, approved by the Resolution of the Cabinet of Ministers of Ukraine dated 30 December 2015 No 1187 (current) in force as of 23 May 2018 No 347. The variant of remote information receiving and interaction with teachers is also envisaged. Logistics meets the license terms.
Information, educational and methodological support	Following the technological requirements for educational-methodological and informational support of educational activities of the relevant level of higher education, approved by the Resolution of the Cabinet of Ministers of Ukraine dated 30 December 2015 No 1187 (current) force as of 23 May 2018 No 347. Scientific works in the field of physical therapy, ergotherapy, materials of specialized portals, webinars, presentations, and papers from professional publications are used for teaching. The University provides degree-seeking students with access to information resources and electronic repository of the G.I. Denysenko Scientific and Technical Library of the Igor Sikorsky KPI for the organization of scientific research, ensures free access to the web-based ORCID scientist's toolkit, Scopus, Web of Science, etc., author's developments of scientific and pedagogical staff of the university. Educational and methodological support: educational and scientific program, curricula, work programs in academic disciplines, syllabuses.
9 - Academic mobility	
National credit mobility	Possibility to conclude agreements on academic mobility
International credit mobility	Agreements on international academic mobility (Eramus+K1) have been concluded with universities: 1. ZKBC Biomedical Technology Co., Ltd (China)

	2. Poznan University of Technology (Poland)
Training of foreign degree-seeking students	Teaching in a foreign language. Training of foreign degree-seeking students within the frameworks of the international credit mobility program

2. LIST OF COMPONENTS OF THE EDUCATIONAL-SCIENTIFIC PROGRAM

Code	Components of the educational program (academic disciplines, course projects/works, practices)	Number of credits, ECTS	Form of final control
1. NORMATIVE			
GO 1	Philosophical principles of scientific activity	6	Exam
GO 2	Foreign language for scientific activity	6	Exam
GO 3	The methodology of development of author's and research rehabilitation programs based on evidence-based medicine	4	Exam
GO 4	Computerized and robotic rehabilitation systems and facilities	4	Exam
GO 5	Methods of mathematical simulation and multidimensional statistical analysis in PTE	4	Exam
GO 6	Innovative methods of examination in physical therapy	4	Exam
GO 7	The latest, perspective and unvalidized rehabilitation technologies	4	Test
GO 8	Biomechanics MSS in author's rehabilitation programs	4	Exam
PO 1	Organization of scientific and innovative activities in physical therapy and ergotherapy	4	Test
PO 2	Pedagogical practice	2	Test
2. OPTIONAL			
PC 1	Educational component 1 of the F-Catalog	3	Test
PC 2	Educational component 2 of the F-Catalog	3	Test
PC 3	Educational component 3 of the F-Catalog	3	Test
PC 4	Educational component 4 of the F-Catalog	3	Test
PC 5	Educational component 5 of the F-Catalog	3	Test
Total compulsory components:		42	
Total optional components:		15	
TOTAL VOLUME OF THE EDUCATIONAL PROGRAM		57	

3. STRUCTURAL-LOGICAL SCHEME OF THE EDUCATIONAL PROGRAM



4. SCIENTIFIC ASPECT

Year of training	Content of the graduate student's scientific work	Form of control
1st year	Choice and reasoning of the subject of own scientific research, determination of the content, date of implementation, and scope of scientific work; selection and substantiation of the methodology of own research, review, and analysis of existing views and approaches that have developed in modern science in the chosen field. Preparation and publication of at least 1 paper (usually a review) in scientific professional publications (domestic or foreign) on the research subject; participation in scientific and practical conferences (seminars) with the publication of abstracts.	Approval of the individual plan of the graduate student's work at the academic council of the institute/faculty, reporting on the progress of the individual graduate student's plan twice a year
2nd year	Conducting own research under the guidance of the supervisor, which involves solving research problems using a set of theoretical and empirical methods. Preparation and publication of at least 1 paper in scientific professional publications (domestic or foreign) on the research subject; participation in scientific and practical conferences (seminars) with the publication of abstracts.	Reporting on the progress of the individual graduate student's plan twice a year
3rd year	Analysis and generalization of the obtained results of own scientific research; substantiation of the scientific novelty of the obtained results, their theoretical and/or practical significance. Preparation and publication of at least 1 paper in scientific professional publications on the research subject; participation in scientific and practical conferences (seminars) with the publication of abstracts.	Reporting on the progress of the individual graduate student's plan twice a year
4th year	Documentation of scientific achievements of the graduate student in the form of the dissertation, summing up concerning comprehensiveness of results of the dissertation coverage in scientific papers according to the current requirements. Implementation of the obtained results and obtaining of supporting documents. Submission of documents for the preliminary examination of the dissertation. Preparation of a scientific report for final certification (defense of the dissertation).	Reporting on the progress of the individual graduate student's plan twice a year/ Providing a conclusion on the scientific novelty, theoretical and practical significance of the dissertation results.

5. FORM OF FINAL CERTIFICATION OF HIGHER EDUCATION SEEKERS

Graduation attestation of higher education seekers according to the educational-scientific program of specialty 227 Physical Therapy, Ergotherapy is carried out in the form of dissertation defense and ends with the issuance of a standard document on awarding the degree of Doctor of Philosophy with the qualification: Doctor of Philosophy in Physical Therapy, Ergotherapy.

Qualification work is checked for plagiarism and after the defense it is placed in the repository of NTB University for free access Graduation certification is carried out publicly in form of open debates.

6. MATRIX OF PROGRAM COMPETENCIES COMPLIANCE TO THE COMPONENTS OF THE EDUCATIONAL PROGRAM

	GO 1	GO 2	GO 3	GO 4	GO 5	GO 6	GO 7	GO 8	PO 1	PO 2	Scientific component
GC 1	+		+	+	+	+	+	+	+	+	+
GC 2	+		+	+	+	+	+		+	+	+
GC 3	+										+
GC 4		+									
GC 5		+									
GC 6	+								+	+	
GC 7									+	+	+
GC 8							+		+	+	+
GC 9			+	+		+	+	+	+	+	+
PC 1			+	+	+	+	+	+	+	+	+
PC 2			+	+		+	+		+	+	+
PC 3	+		+	+			+		+	+	+
PC 4			+	+			+	+			+
PC 5	+						+		+	+	+
PC 6				+			+		+	+	+
PC 7			+	+						+	+
PC 8			+		+						+
PC 9		+									+
PC 10	+									+	+

7. MATRIX OF PROVIDING PROGRAM LEARNING OUTCOMES BY RELEVANT COMPONENTS OF THE EDUCATIONAL PROGRAM

	GO 1	GO 2	GO 3	GO 4	GO 5	GO 6	GO 7	GO 8	PO 1	PO 2	Scientific component
PRS 1							+		+		+
PRS 2			+	+		+	+	+	+	+	
PRS 3			+	+		+	+	+	+	+	+
PRS 4			+	+							
PRS 5			+						+	+	
PRS 6			+			+	+		+	+	+
PRS 7			+				+			+	+
PRS 8	+									+	+
PRS 9			+				+	+	+	+	+
PRS 10			+				+			+	+
PRS 11	+		+				+			+	+
PRS 12		+									+
PRS 13					+	+		+	+	+	+
PRS 14			+		+	+		+		+	+
PRS 15			+						+	+	+
PRS 16			+				+		+	+	+
PRS 17			+	+			+			+	+
PRS 18			+	+				+	+	+	
PRS 19			+	+				+	+		+
PRS 20							+		+		+