


H.S. SKOVORODA KHARKIV NATIONAL PEDAGOGICAL UNIVERSITY

**NON-GOVERNMENTAL ORGANIZATION
“EDUCATION OF THE XXI CENTURY”**

<p>APPROVED by the Academic Council of H.S. Skovoroda Kharkiv National Pedagogical University protocol No. dated 25.05.2022</p> <p>Chairman of the Academic Council, Prof. Yurii Boichuk</p>	<p>APPROVED by the Research and Educational Council of the Research and Educational Project “Intellect of Ukraine” protocol No. 5 dated 25.05.2022</p> <p>Head of the Research and Educational Council, Scientific Supervisor of the Research and Educational Project “Intellect of Ukraine,” Doctor of Pedagogical Sciences, Professor of H.S. Skovoroda Kharkiv National Pedagogical Unvers Prof. Iryna Gavrysh </p>
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**PROGRAM
OF PROFESSIONAL DEVELOPMENT COURSES
FOR TEACHERS OF CHEMISTRY
WHO WORK / WILL WORK IN 7–11th GRADES OF
THE RESEARCH AND EDUCATIONAL PROJECT
“INTELLECT OF UKRAINE” IN THE CONTEXT
OF WAR / POSTWAR STATE**

INTRODUCTION

DEVELOPED on the basis of the provisions of the current legislation by the project team of the Research and Educational Project “Intellect of Ukraine” (hereafter referred to as “the Project”):

1. Iryna Gavrysh, Scientific Supervisor of the Project, Doctor of Pedagogical Sciences, Professor, Professor of the Department of Primary and Vocational Education at H.S. Skovoroda Kharkiv National Pedagogical University.
2. Oleh Yeresko, Deputy Supervisor of the Project on regulatory and legal support for its implementation in the educational space of Ukraine, Candidate of Pedagogical Sciences, Senior Lecturer at the Department of Pedagogy of the National University of Life and Environmental Sciences of Ukraine.
3. Oleksandr Shcherbakov, Deputy Project Supervisor for the organization of the educational process in general secondary education institutions working under the Project, Honor Worker of Education of Ukraine, Headmaster of Kharkiv Gymnasium No. 169.
4. Olha Lysenko, Deputy Project Supervisor for organizational and methodological support of the Project implementation at secondary (basic) schools, Deputy Headmaster for Educational Work at Kharkiv Gymnasium No. 169.
5. Yuliia Syzykh, Member of the Project authors’ team, Teacher of Chemistry at Kharkiv Gymnasium No. 169.

REVIEWS from external stakeholders:

1. Review by Serhii Hrytsai, Pro-Rector for Scientific Work of the Sumy Regional Institute of Postgraduate Pedagogical Education, Candidate of Pedagogical Sciences, Associate Professor, Honor Worker of Public Education of Ukraine.
2. Review by Halyna Ivanytsia, Pro-Rector for Scientific, Pedagogical, and Educational Work of the Public Higher Educational Establishment “Vinnytsia Academy of Continuing Education,” Candidate of Pedagogical Sciences, Associate Professor.

EXPLANATORY NOTE

I. General provisions

The professional development course program for teachers of Chemistry (hereafter referred to as “the Program”) is designed for those who currently work or will work with students in 7–11th grades of the “Intellect of Ukraine” Research and Educational Project in the conditions of war / postwar times. The Program is developed in accordance with the regulatory framework for the educational system in Ukraine, taking into account the axiological imperatives to update content, methods, forms, and means of the national education system in line with the “New Ukrainian School” Concept, the 21st-century civilizational challenges, the main provisions of STEM education and humanistic pedagogy, as well as the achievements of modern psychology, pedagogy, and age physiology. The Program also considers the unique organizational requirements of education process during war / postwar times.

Program relevance. The position of Chemistry in the school education system is determined by its role in the formation of educational, social, general cultural, and life competencies, as well as the civil society values, in the students’ personal development with a focus on further education, in the formation of creativity and critical thinking, and creative abilities.

The sphere of education, just like all other spheres of society, has experienced significant transformations during the period of martial law. In the context of social upheavals, including the military aggression in Ukraine, the efficiency of teacher training programs has decreased. Currently, the most urgent educational issues include:

- 1) insufficient training of teachers in maintaining their own psychological and emotional stability in stressful situations and providing psychological first aid and emotional support to students;
- 2) teachers’ unawareness of effective ways to make up for educational losses and their unpreparedness to use tools that give students the right to choose and provide opportunities to show their strengths and abilities;
- 3) unpreparedness of educators to implement the main provisions of STEM education in the educational process and training of STEM-educated qualified specialists;
- 4) organization of training in the context of remote education;
- 5) Ukrainian educators are not equipped with effective technologies for developing students’ ability to learn as a key competence of today.

This has resulted in the emergence of a new social order for a new generation of teachers capable of effective professional activity in wartime / postwar conditions, who are able to quickly adapt and recover from stressful situations, changes, problems, failures, disappointments, or prolonged stress, thereby safeguarding their physical and mental well-being and, most importantly, human dignity.

Regulatory framework of the Program. The program is developed in accordance with the provisions of the Laws of Ukraine “On Education” (as amended), “On Complete General Secondary Education” (as amended); on the basis of the State Standard of Basic Secondary Education approved by the Resolution of the Cabinet of Ministers of Ukraine No. 898 dated 30.09.2020; on the basis of the Concept for the Implementation of the State Policy in the Field of General Secondary Education Reform “New Ukrainian School” for the period up to 2029 (as amended); the Procedure for Professional Development of Pedagogical and Scientific-Pedagogical Workers (as amended) approved by the Resolution of the Cabinet of Ministers of Ukraine No. 800 dated 21.08.2019, the National Qualifications Framework (as amended); the orders of the Ministry of Education and Science of Ukraine No. 805 dated 09.09.2022 “On Approval of the Regulation on Certification of Pedagogical Workers” (as amended) registered with the Ministry of Justice of Ukraine on December 21, 2022 under No. 1649/38985, and No. 734 dated 29.06.2021 “On conducting an experiment about the “Creation and implementation of a model of the national educational technology park to improve the quality of preschool and general secondary education with the participation of educational institutions working on the Research and Educational Project “Intellect of Ukraine” during June 2021 to December 2030”; and other regulatory acts.

The target audience of the Program: teachers of Chemistry who work / will work in 7–11th grades of the Research and Educational Project “Intellect of Ukraine” in the context of martial law / postwar period.

The goal of the Program is to increase the level of formation of the system of basic competencies for teachers of Chemistry, which are necessary for the development of a competency-based secondary school, implementation of regulatory acts on the functioning of the national education system, including the State Standard of Basic and Complete Secondary Education and the “New Ukrainian School” Concept in the context of martial law / postwar period.

The main objectives of the Program are:

- promoting the implementation of the social order to enhance the quality of competency-based basic education, as prescribed by the normative legal acts in the national education system in general and basic education in particular in the context of martial law / postwar period;
- creating conditions for course participants to reconsider the role of a teacher of the basic school subject “Chemistry” at the current stage of Ukraine’s struggle for independence;
- formation of a system of knowledge, skills, values, and attitudes in course participants as key and professional competencies, which will allow them to carry

out professional and pedagogical activities in the conditions of remote learning.

The **basic competencies** to be formed as a result of the Program include the system of competencies defined by the Order of the Ministry of Education and Science of Ukraine No. 776 dated 16.07.2018 “On Approval of the Concept of Development of Pedagogical Education,” by Professional Standard and Educational Standard, namely:

✓ ***social and civic competence*** is understanding of the essence of civil society; mastering knowledge of human rights and freedoms; awareness of global (in particular, environmental) problems of humanity and the possibilities of personal participation in their solution; recognition of civil society, civic duty, and self-esteem as personal values of a citizen of Ukraine; formation of skills for effective and constructive participation in social development, identification of problematic issues in the socio-cultural and professional spheres of human life and the finding of ways to solve them; the ability to work effectively in a team, prevent disputes, and resolve conflicts with the help of compromise.

✓ ***general cultural competence*** is the ability to understand works of art, form one’s own artistic tastes, independently express ideas, experiences, and feelings through art; the ability to realize one’s personal national identity as the basis for a positive attitude and respect for representatives of other cultures;

✓ ***entrepreneurial competence*** is the ability to generate new ideas and initiatives and implement them in order to improve one’s own social status and well-being, as well as the development of society and the state;

✓ ***information and digital competence*** is the ability to navigate the information space, receive information and operate with it according to one’s own needs and the requirements of the modern high-tech information society; mastering various ways of presenting information, its visualization using information and communication technologies;

✓ ***professional and pedagogical competence*** is awareness of the latest scientifically based information on pedagogy, psychology, pedagogical innovation, methods for creating an educational and developmental environment that promotes the holistic individual and personal development of children of secondary school age; the ability to productive professional activity based on developed pedagogical reflection according to the leading value and worldview orientations, requirements of pedagogical ethics, and challenges of secondary schools;

✓ ***linguistic and communicative professional competence*** is mastering systematic knowledge of the norms and types of professional and pedagogical communication in the process of organizing collective and individual activities of students; formation of skills to listen, defend their own position using various methods of reasoning and

argumentation; development of a culture of professional and pedagogical communication; the ability to achieve pedagogical results through productive communicative interaction (formation of relevant knowledge, verbal and non-verbal skills, and abilities depending on communication and activity situations);

✓ ***psychological and facilitation competence*** is awareness of the value of physical, mental, and moral health of the subjects of the educational process; the ability to promote their creative development and build an individual educational trajectory of students.

The expected learning outcomes of the Program are formulated according to the Order of the Ministry of Education and Science of Ukraine No. 776 dated 16.07.2018 “On Approval of the Concept of Development of Pedagogical Education,” Professional Standards and Educational Standards, and are presented in *Table 1*.

**Expected learning outcomes for Chemistry teachers,
who work / will work in 7–11th grades
of the Research and Educational Project “Intellect of Ukraine”
in the context of martial law / postwar period**

Table 1

Knowledge and comprehension	<ul style="list-style-type: none"> – current trends in the development of education in general; – social and legal foundations, legislative acts in the field of basic education; – peculiarities of the processes of teaching and education of secondary school students; – the main mechanisms of functioning and implementation of the competency-based learning paradigm; – ways to implement the integration approach in teaching secondary school students; – concept of inclusive education; – basic provisions of andragogy; – features of the educational program of the subject “Chemistry”; – pedagogical technologies used in the educational process of the Project. <p style="text-align: center;">In the context of the Russian-Ukrainian war, these components of knowledge <u>were specified and supplemented</u> in the Course Program as follows:</p> <ul style="list-style-type: none"> – education in Ukraine under martial law and in the postwar period; – remote education as the main form of education in war and postwar times; theoretical, theoretical and methodological, and technological aspects of its effectiveness; – emotional support and psychological first aid to students as the most important task of educators in the context of the Russia’s invasion and in the postwar period; – formation of the key competence “ability to learn” as a priority area for the implementation of the competency-based approach in education in war and postwar times; – innovative technologies of remote education aimed at bridging the gaps in students’ knowledge, skills, and abilities caused by the consequences of Russia’s aggression; – STEM education and its importance in the development of independent Ukraine and preventing a Russia’s invasion in the future.
Developed skills	<ul style="list-style-type: none"> – to organize and implement a certification program of professional development courses for teachers of the 7–11th grades based on andragogy, as well as competency-based, innovative, and personalized approaches; – to organize a culturally and linguistically appropriate educational

	<p>and developmental environment when training course participants;</p> <ul style="list-style-type: none"> – to develop individual educational trajectories for the professional development of participants of professional development courses for teachers in the 7–11th grades who work according to the educational program of the basic school of the Research and Educational Project “Intellect of Ukraine” and help the participants implement them; – to reveal the features of the Chemistry educational program for the 7–11th grades, which is taught according to the original methods of the Research and Educational Project “Intellect of Ukraine”; – to conduct lessons of the subject “Chemistry” and analyze them; – to monitor the effectiveness of the educational process in the 7–11th grades of the Research and Educational Project “Intellect of Ukraine”; – to design one’s own professional and personal growth program. <p>In the context of the Russian-Ukrainian war, these components of skills <u>were specified and supplemented</u> in the Course Program as follows:</p> <ul style="list-style-type: none"> – to effectively organize the educational process in the “Intellect of Ukraine” project classes via remote learning, taking into account the peculiarities of wartime (air raid alerts, power outages, limited access, etc.); – to master and apply the technology of emotional support and psychological first aid to students; – to master, apply, and learn to create a methodology for determining gaps in students’ knowledge, skills, and abilities compared to regulatory requirements (educational losses); – to master, apply, and learn how to develop individualized remote technology for the complete assimilation of knowledge, skills, and abilities in order to overcome educational losses of students; – to master and apply in practice the technology of forming students’ ability to learn as the most important key competence in war and postwar times; – to master and effectively use STEM education technology in the educational process of the “Intellect of Ukraine” project classes.
<p>Dispositions (values, attitudes)</p>	<ul style="list-style-type: none"> – professing and promoting traditional and modern democratic values; – implementation of professional and pedagogical activities on the basis of pedagogical axiology; – readiness for changes, reflection on own professional and

pedagogical activity, continuous professional development.

In the **context of the Russia's invasion**, these dispositions were supplemented in the Course Program as follows:

- Ukraine's independence and peaceful sky as the highest values;
- cohesion of Ukrainians and mutual support as the highest value;
- access to quality education as the highest value.

II. General characteristics of the Program

The **content of the Program** is determined in accordance with the didactic principles of designing of the educational content. In accordance with *the principle of correspondence of educational content with formative and civilizational trends in the development of humanity in general and Ukrainian society in particular*, we consider the provisions of the post-nonclassical paradigm of education as the starting point, in which the conceptual educational goal is to create conditions for self-actualization and creative self-realization of the individual in a complex unstable world. The axiological imperatives of state educational policy in the post-nonclassical paradigm are a combination of technocracy with humanistic priorities and culture-centeredness, which represents the typical features of a cultural personality: spirituality, national consciousness, cultural tolerance, positive thinking, emotional intelligence, etc.

The modernization of the national educational system on the basis of the **competency-based approach**, the conceptual goal of which is the formation of a student as a subject of life through the formation of a system of interrelated key, general, and subject competencies, requires the abandonment of the cognitive approach to the formation of educational content with the well-known triad of structural components (ZUNs) in favor of the competency-based approach, within which the structural components of educational content are key and professional competencies.

In accordance with the above, the curriculum of the professional development courses for teachers of Chemistry in the 7–11th grades who work / will work within the educational program “Chemistry” of the Project is implemented **in 30 academic hours (1 ECTS credit)** and includes 3 modules: social and humanitarian, professional, diagnostic and analytical.

The social and humanitarian module (8 academic hours) ensures the development of course participants’ competence in the regulatory framework of basic secondary education in general, philosophy of education, communication theory, personality psychology and cultural studies.

In the context of the **Russia’s invasion**, the materials of *the social and humanitarian module* have been changed and include the following questions:

1. Humanistic values in the context of the Russia’s invasion and in the postwar period. Legal framework and current issues of education in Ukraine (2 hours).
2. Remote learning as the main form of education in war and postwar times. Theoretical and methodological, and technological aspects of its effectiveness (2 hours).
3. Emotional support and psychological first aid to students as the most important task of educators in the conditions of the Russia’s invasion and in the postwar period (2 hours).

The professional module (22 academic hours) is aimed at developing the ability of

course participants to carry out professional activities according to the educational program “Chemistry” of the Project and contains issues related to methodology, theory, methods, and practice of teaching students of the project classes, the peculiarities of working with children with special needs, innovative authors’ technologies for effective mastery of educational material, learning based on students’ own discoveries, rational reading, etc.

In the context of **Russia’s aggression**, the materials of the *professional module* have been enriched with the following topics:

1. Individualized remote technology for the complete assimilation of knowledge, skills, and abilities as a means of overcoming educational losses of students.
2. Technology for the development of the key competence “ability to learn” as a priority area for the implementation of a competency-based approach to education in war and postwar times.
3. Technology for implementing STEM education and its importance in building independent Ukraine and preventing a Russia’s invasion in the future.

The diagnostic and analytical module (implemented during the social and humanitarian, and the professional modules) is aimed at identifying and improving the level of formation of key and professional competencies of teachers in the 7–11th grades who work / will work within the educational program “Chemistry” of the Project, and provides for participants’ continuous diagnostics of the level of learning and the defense of the individual / group project “My lessons of the subject “Chemistry” in the project classes of the 7–11th grades (September 2023).”

**CURRICULUM OF THE PROFESSIONAL DEVELOPMENT COURSES
FOR TEACHERS OF CHEMISTRY
WHO WORK / WILL WORK IN 7–11TH GRADES OF THE RESEARCH
AND EDUCATIONAL PROJECT “INTELLECT OF UKRAINE”**

Table 2

Module	No.	Topics of the practical lessons	Hours	Expected learning outcomes in terms of competency-based approach
1. Social and humanitarian module	1.1	The humanistic values in the context of the Russia’s invasion and in the postwar period. Legal framework and current issues of education in Ukraine	2 h	<p style="text-align: center;">Key competencies and personal qualities</p> <ul style="list-style-type: none"> ● Social and civic competencies. ● Cultural competence. ● Ability to learn throughout life. ● Native and state languages as key competencies ● Patriotism. ● Critical thinking. ● Positive thinking. ● Emotional intelligence. <p style="text-align: center;">Professional competencies</p> <ul style="list-style-type: none"> ● Ability to form social and civic competencies, and patriotism in students. ● Ability to implement the technology of critical thinking. ● Ability to implement the technology of value saturation every lesson. ● Ability to create a situation of success. ● Ability to form positive thinking and emotional intelligence in students. ● Ability to carry out professional activities in accordance with the regulatory framework of Ukraine.
	1.2	Remote education as the main form of education in war and postwar times. Theoretical and methodological, and technological aspects of its effectiveness	2 h	<p style="text-align: center;">Key competencies and personal qualities</p> <ul style="list-style-type: none"> ● Information and communication competence. ● Innovativeness. ● Ability to learn throughout life. ● Critical thinking. <p style="text-align: center;">Professional competencies</p> <ul style="list-style-type: none"> ● Ability to teach students in the context of remote education.
	1.3	Emotional support and psychological first aid to students as the most important task of educators in the context of the Russia’s invasion and in the postwar period	2 h	<p style="text-align: center;">Key competencies and personal qualities</p> <ul style="list-style-type: none"> ● Health-preserving competence. ● Social and civic competencies. ● Life safety competence. ● Positive thinking. ● Resilience. ● Emotional intelligence. <p style="text-align: center;">Professional competencies</p> <ul style="list-style-type: none"> ● Ability to provide emotional support to participants during the educational process. ● Ability to provide psychological first aid to participants during the educational process. ● Ability to form positive thinking and emotional intelligence.

	1.4	Module control for the social and humanitarian block. Briefing "Project "Intellect of Ukraine""	2 h	<p>Key competencies and personal qualities</p> <ul style="list-style-type: none"> • Social and civic competencies. • Cultural competence. • Life safety competence. • Information and communication competence. • Native and state languages as key competencies. • Health-preserving competence. • Ability to learn throughout life. • Patriotism. • Critical thinking. • Positive thinking. • Emotional intelligence. • Innovativeness. • Resilience. <p>Professional competencies</p> <ul style="list-style-type: none"> • Ability to form social and civic competencies, and patriotism in students. • Ability to implement the technology of critical thinking. • Ability to implement the technology of value saturation every lesson. • Ability to create a situation of success. • Ability to form positive thinking and emotional intelligence in students. • Ability to carry out professional activities in accordance with the regulatory framework of Ukraine. • Ability to teach students in the context of remote education. • Ability to emotionally support participants during the educational process. • Ability to provide psychological first aid to participants during the educational process.
Total hours for the social and humanitarian module				8 h
2. Professional module	2.1	Individualized remote technology for the complete assimilation of knowledge, skills, and abilities as a means of overcoming educational losses of students	2 h	<p>Key competencies and personal qualities</p> <ul style="list-style-type: none"> • Information and communication competence. • Innovativeness. • Ability to learn throughout life. • Critical thinking. <p>Professional competencies</p> <ul style="list-style-type: none"> • Ability to implement the main provisions of inclusive education. • Ability to implement the principles of individualized approach. • Ability to teach students in the context of remote education. • Ability to develop and implement an individual educational trajectory for students in remote learning.
	2.2	Technology for the formation of the key competence "ability to learn" as a priority for the implementation of the competency-based approach in education in war and postwar times	2 h	<p>Key competencies and personal qualities</p> <ul style="list-style-type: none"> • Ability to learn throughout life. • Critical thinking. • Information and communication competence. • Innovativeness. <p>Professional competencies</p> <ul style="list-style-type: none"> • Ability to develop students' ability to learn as a key competence. • Ability to develop students' information and communication competence. • Ability to develop students' rational reading skills. • Ability to develop students' critical and innovative thinking.

2.3	Technology for implementing STEM education and its importance in building independent Ukraine and preventing a Russia's invasion in the future	2 h	<p>Key competencies and personal qualities</p> <ul style="list-style-type: none"> ● STEM competencies. ● Natural science competence. ● Critical thinking. ● Creativity. ● Logical thinking. <p>Professional competencies</p> <ul style="list-style-type: none"> ● Ability to teach students based on their own discoveries. ● Ability to provide integrated learning for students based on interdisciplinary and project-based approaches. ● Ability to develop students' research competence, master algorithms for solving inventive problems. ● Ability to develop students' innovative thinking. ● Ability to conduct lessons of Chemistry aimed at developing abilities in the natural sciences using the authors' technologies of the Research and Educational Project "Intellect of Ukraine."
2.4	Features of teaching Chemistry under the REP "Intellect of Ukraine"	4 h	<p>Key competencies and personal qualities</p> <ul style="list-style-type: none"> ● Ability to work in a team, motivate people, effectively interact with group members during training, adhering to moral and ethical standards and rules of effective communication. ● Ability to communicate in the state language. ● Ability to tolerate the worldview, values, principles, and inclinations of other people, to respect and value diversity and multiculturalism. ● Ability to think abstractly, analyze and synthesize, rationally search, process, and critically evaluate information from various sources. ● Ability to use various sources of information, including the Internet, social networks, and information and communication technologies in the process of cognition, to learn and acquire modern knowledge, to apply it in practical situations. ● Ability to effectively self-manage, solve problems of personal development, work autonomously, critically evaluate and ensure the quality of learning and teaching activities. <p>Professional competencies</p> <ul style="list-style-type: none"> ● Ability to form key and subject competencies in students of the 7–11th project classes. ● Ability to develop students' skills and abilities to integrate subject knowledge from different educational fields. ● Ability to determine the goals, objectives, principles, content, methods, forms, and means of the subject "Chemistry." ● Ability to critically analyze and evaluate modern pedagogical theories and technologies, generalize domestic and foreign experience, educational practices in the field of education. ● Ability to make informed choices and effective use of pedagogical technologies in the educational process of basic school. ● Ability to create a favorable psychological climate in the educational process. ● Ability to preserve and promote the health of students through the implementation of the cross-cutting line "Health and Safety." ● Ability to generate new scientific ideas in the field of basic school pedagogy.

	2.5	Implementation of partnership pedagogy in the Research and Educational Project “Intellect of Ukraine”	2 h	<p>Key competencies and personal qualities</p> <ul style="list-style-type: none"> • Social and civic competencies. • Positive thinking. • Emotional intelligence. <p>Professional competencies</p> <ul style="list-style-type: none"> • Ability to cooperate and communicate with participants of the educational process and colleagues.
	2.6	Master classes on conducting the project lessons of Chemistry	2 h	<p>Key competencies and personal qualities</p> <ul style="list-style-type: none"> • Natural science competence. • STEM competencies. • Social and civic competencies. • Logical thinking. • Critical thinking. • Positive thinking. • Emotional intelligence. <p>Professional competencies</p> <ul style="list-style-type: none"> • Ability to conduct lessons of Chemistry using the authors’ technologies of the Research and Educational Project “Intellect of Ukraine.”
	2.7	Didactic workshop “Defense of the individual / group project “My Lesson of Chemistry in the project classes of the 7–11 th grades (based on Part 1 materials as of September 2023)”	8 h	<p>Key competencies and personal qualities</p> <ul style="list-style-type: none"> • Natural science competence. • STEM competencies. • Social and civic competencies. • Logical thinking. • Critical thinking. • Positive thinking. • Emotional intelligence. <p>Professional competencies</p> <ul style="list-style-type: none"> • Ability to conduct lessons of Chemistry using the authors’ technologies of the Research and Educational Project “Intellect of Ukraine.”
Total hours for the professional module				22 h
3. Diagnostic and analytical module	3	Current diagnostics of the level of learning of educational material, module control; defense of the individual / group project “My Lesson of Chemistry in the project classes of the 7–11 th grades (based on Part 1 materials as of September 2023)”	Implemented during the first and the second modules	<p>Key competencies and personal qualities</p> <ul style="list-style-type: none"> • Natural science competence. • STEM competencies. • Social and civic competencies. • Logical thinking. • Critical thinking. • Positive thinking. • Emotional intelligence. <p>Professional competencies</p> <ul style="list-style-type: none"> • Ability to conduct lessons of Chemistry using the authors’ technologies of the Research and Educational Project “Intellect of Ukraine.”
Total number of hours provided by the curriculum				30 h

III. Organizational issues of the Program implementation

The Program can be implemented through *full-time*, *remote*, and *blended full-time and remote* forms of education.

The *full-time form* involves interactive lectures, master classes, training sessions, discussions, conferences, defense of individual and group projects, etc.

The *remote form* includes classes in synchronous and asynchronous modes.

Course participants are trained in synchronous manner via the Zoom platform in small groups of up to 12 individuals. Coaches lead the sessions through Zoom conferences and incorporate interactive learning technologies. Each lesson includes accompanying presentations, PDFs, and diagnostic tests to assess the participants' grasp of the training-methodological material.

Asynchronous training is made available to course participants through access to conference archives and training-methodological materials. Course participants are required to complete all tasks assigned by the coach and provide a report on the results of their implementation. If needed, the coach will offer individual consultations to the participant.

Blended full-time and remote form, which is regarded as the most effective approach for adult education in contemporary andragogy, allows course participants to integrate the benefits of traditional classroom learning with the flexibility of remote learning.

Recognition of the results of the Program participants

Upon successful completion of the Program, course participants receive a certificate that meets the requirements of paragraph 13 of the Resolution of the Cabinet of Ministers of Ukraine "Some Issues of Professional Development of Pedagogical and Scientific-Pedagogical Staff Members" (as amended) No. 800 dated 21.08.2019.

The organizers of the professional development (regional institutes of postgraduate pedagogical education (hereinafter referred to as regional IPPE) and the Non-Governmental Organization "Education of the XXI century" shall publish information about the issuance of the certificate on their official website within 15 calendar days.

The results of the professional development in regional IPPEs do not require additional recognition.

The results of the professional development in the Non-Governmental Organization "Education of the XXI century" are recognized by the *decision of the pedagogical / academic council of the educational institution where the educator works* and are credited to him / her in the amount of the number of hours specified in the certificate.