MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
FERENC RÁKÓCZI II TRANSCARPATHIAN HUNGARIAN COLLEGE OF HIGHER EDUCATION

Approved by the Academic Council

of the Ferenc Rákóczi II TransCarpathian College of Higher Education,
Protocol No. 2 of 31 March 2022

With amendments and additions
approved by the Academic Council,
Protocol No. 3 of 24 April 2025

Enacted by the Rector's Order
№51-Вн of 25 April 2025

Chair of the Academic Council_____Csernicskó S.S.

EDUCATIONAL AND PROFESSIONAL PROGRAM "INFORMATICS"

LEVEL OF HIGHER EDUCATION: First

DEGREE: Bachelor

FIELD OF KNOWLEDGE: A – Education

SPECIALTY: A4 – Secondary Education

SUBJECT SPECIALIZATION: A4.09 – Secondary Education (Informatics)

QUALIFICATION:

Bachelor of Secondary Education in

"Secondary Education (Informatics)"

Berehove – 2025

APPROVAL SHEET

for the Educational and Professional Programme

"Informatics"

1. **Programme Guarantor:**

Alexander TYLYSHCHAK, Doctor of Physical and Mathematical Sciences,

Associate Professor, Professor of the Department of Mathematics and Informatics _____

2. **Programme Developers:**

József HOLOVÁCS, Doctor of Technical Sciences,

Professor, Professor of the Department of Mathematics and Informatics _____

Adam DOROVTSI, Doctor of Philosophy in Applied Mathematics,

Lecturer of the Department of Mathematics and Informatics _____

_____ 2025.

3. **Head of the Department of Mathematics and Informatics** _____ Katalin KUCHINKA

_____ 2025.

4. **Head of the Student Contingent Office** _____ Zsuzsanna FIZESHI

_____ 2025.

5. **Head of the Quality Assurance Office of Higher Education** _____ Adalbert RAC

_____ 2025.

6. **Vice-Rector for Academic and Methodological Work** _____ Oleksandr BERGHAUER

_____ 2025.

7. **Vice-Rector for Research and Quality Assurance** _____ Gyula FODOR

_____ 2025.

8. **Rector** _____ István CSERNICSKÓ

_____ 2025.

PREAMBLE

The Educational and Professional Programme “Informatics” has been developed in accordance with the Laws of Ukraine “On Education” and “On Higher Education”, the Resolution of the Cabinet of Ministers of Ukraine No. 1341 of 23 November 2011 (as amended by Resolution No. 519 of 25 June 2020) “On Approval of the National Qualifications Framework” (NQF), and relies on regulatory documents that define the development of components of the higher-education standards system and regulate the provision of educational activities in higher-education institutions of Ukraine. Furthermore, the Programme is based on the “Methodological Recommendations for the Development of Higher-Education Standards” approved by the Order of the Ministry of Education and Science of Ukraine No. 600 of 01 June 2017, as well as on the internal Methodological Recommendations for preparing and updating educational programmes at the Ferenc Rákóczi II Transcarpathian Hungarian College of Higher Education. The Programme also refers to the Resolution of the Cabinet of Ministers of Ukraine No. 266 of 29 April 2015 “On Approval of the List of Fields of Knowledge and Specialties for which training of applicants of higher and professional pre-higher education is carried out” (as amended in 2025).

To define the types of professional work for graduates holding a first (bachelor) level higher-education degree in the subject specialty A4.09 Secondary Education (Informatics), the Ukrainian National Classifier DK 003:2010 “Classifier of Professions” was used (as per the Annex to the Cabinet of Ministers Resolution of 23 November 2011 No. 1341, in the versions amended by CMU Resolution No. 509 of 12 June 2019 and No. 519 of 25 June 2020). During the development of the Educational Programme — in particular, when determining general and special (professional) competences and learning outcomes — the work of the European-wide project “Tuning Educational Structures in Europe”, the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG), as well as the Order of the Ministry of Education and Science of Ukraine No. 1225 of 29 August 2024 “On Approval of the Professional Standard for the Profession ‘Teacher of a General Secondary Education Institution’” have been used. Also referenced is the draft Higher Education Standard for specialty A4 Secondary Education (for subject-specialties) at the first (bachelor) level, published for public discussion on 17 April 2024.

Approved and entered into force by the decision of the Academic Council of the Ferenc Rákóczi II Transcarpathian Hungarian College of Higher Education on “24” April 2025, protocol No. 3. The Educational Programme comes into effect from “25” April 2025 (Order № 42-Вн of 25 April 2025).

The EPP “Secondary Education (Informatics)” was developed by the working group of the Department of Mathematics and Informatics at the higher-education institution Ferenc Rákóczi II Transcarpathian Hungarian College of Higher Education composed of:

1. Tylyshchak O. A. — Doctor of Physical and Mathematical Sciences, Professor of the Department of Mathematics and Informatics, Programme guarantor;
2. Holovács J. I. — Doctor of Technical Sciences, Professor of the Department of Mathematics and Informatics;
3. Dorotsi A. F. — Doctor of Philosophy in Applied Mathematics, Lecturer at the Department of Mathematics and Informatics.

External stakeholders’ reviews:

1. Povkhan Ihor Fedorovych — Doctor of Technical Sciences, Professor, Professor of the Department of Software Systems, Dean of the Faculty of Information Technologies;
2. Shimon Lenard — Lecturer of Mathematics and Informatics at the Professional College of the Ferenc

Rákóczi II Transcarpathian Hungarian College of Higher Education;
3. Madyar Vita Stepanivna — Director of the Karachyn Greek-Catholic Lyceum named after Bishop Oleksandr Stoyka, Informatics teacher.

1. PROFILE OF THE EDUCATIONAL PROGRAMME FOR THE SUBJECT SPECIALTY A4.09 "Secondary Education (Informatics)"

1 -- General Information	
Full name of the higher education institution and structural unit	Ferenc Rákóczi II Transcarpathian Hungarian College of Higher Education, Department of Mathematics and Informatics
Name of the educational programme	Educational and Professional Programme "Informatics"
Level of higher education	- First (Bachelor's) level
Degree awarded	Bachelor's Degree
Field of knowledge	A – Education
Specialty	A4 – Secondary Education
Subject specialty	A4.09 – Secondary Education (Informatics)
Forms of study	Institutional (full-time, part-time)
Educational qualification	Bachelor of Education in "Secondary Education (Informatics)"
Professional qualification	Bachelor-Teacher (Secondary Education (Informatics))
Qualification to be stated in the diploma	Bachelor of Education. Secondary Education (Informatics). Teacher of Informatics, lecturer of professional pre-higher and vocational education institutions
Type of diploma and scope of the programme	Bachelor's diploma, 240 ECTS credits. Duration of study: 3 years 10 months. The volume of the Bachelor's programme based on complete general secondary education: 240 ECTS credits
Cycle / level	National Qualifications Framework of Ukraine — Level 6 QF-EHEA — First cycle EQF-LLL — Level 6.
Entry requirements (Prerequisites)	Complete general secondary education
Language(s) of instruction	Ukrainian, Hungarian
Accreditation status	Under initial accreditation
Permanent link to the online description of the educational programme	https://kmf. uz. ua/uk/osvitni-programi/
2 -- Purpose of the Educational Programme	
The purpose of the Educational and Professional Programme is to ensure the preparation of highly qualified and professionally competent specialists capable of working competitively in various types of educational institutions and able to organise and implement the teaching of informatics. The Programme emphasizes comprehensive and in-depth knowledge in the fields of informatics, pedagogy, and methods of teaching informatics; preparation for conducting educational and instructional activities; the ability to perform research; solving professional tasks based on the achievements of modern informatics; as well as organising and ensuring a highly effective educational process in informatics within general secondary education institutions. The Programme also aims to develop appropriate competences necessary for further learning and personal development.	
3 -- Characteristics of the Educational Programme	
Subject area (field of knowledge, specialty, specialisation)	**The object of study** is the educational process in secondary education institutions, determined by the regularities and specifics of the content of the

	school subject Informatics, as well as modern methods and technologies of teaching informatics. **Methods, methodologies, and technologies**: General scientific methods of cognition and research activity; methods of informatics; educational technologies and methodologies for developing competences relevant to the profession of an informatics teacher in general secondary education; monitoring of pedagogical activity; information and communication technologies. **Learning objectives:** formation of integral, general, and professional competences required for the work of an informatics teacher in secondary education; acquisition of fundamental theoretical and methodological knowledge, as well as innovative technologies necessary for organising the educational process in educational institutions; creating appropriate conditions for the realisation of students' individual and personal potential, fostering the development of general cultural and professional competences; fostering students' motivation to preserve national pedagogical and cultural heritage, study international pedagogical experience, and apply it in their own scientific and practical activities; ensuring conditions for continuous lifelong learning and self-education; preparing specialists capable of identifying and effectively solving complex specialised tasks and practical problems of innovative and scientific nature in the field of organising the educational process in general secondary education institutions; developing students' ability to engage in teaching activities, to organise the learning process using digital learning tools, and to demonstrate competence in using two languages (Ukrainian and Hungarian) in professional work. The Educational Programme is based on the strategic goals of the higher education institution, namely: the development of the individual; the formation of regional competitiveness and innovation capacity. **Theoretical content of the subject area**: Theory and methods of teaching informatics; fundamentals of informatics and mathematics and the main and supplementary sections of the core fields of informatics. **Tools and equipment:** Modern information and communication equipment for the educational process; specialised laboratory and technological equipment and software required for teaching informatics (IT technologies and computer tools); library resources and technologies; facilities for academic and practical placements (based on cooperation agreements).
Orientation of the Educational Programme	The Bachelor's Educational and Professional Programme is oriented towards the theoretical and practical training of future informatics teachers, aimed at the formation of general and professional competences..
Main focus of the Programme and specialisation	The educational process within the general secondary education system (basic secondary level) in the subject specialty A4.09 Secondary Education (Informatics).
Programme features	The Programme has an interdisciplinary and practice-oriented character (research-based learning); focuses on the development of general, professional, and universal (soft skills) competences; includes planning and organising integrated thematic project-based learning in informatics in modern schools; developing diverse types of projects for implementing competence-based

	learning; mastering modern methodologies and activity-based technologies for teaching informatics and managing the classroom; and continuous foreign-language training of future teachers. The Programme provides an individual trajectory of professionalisation for each student. Training is grounded in awareness and the ability to use information and communication technologies in education. The Programme also aims to enhance professional-pedagogical competences and improve programming skills. Several courses within the Programme may be taught in English or other official languages of the European Union. Additional free courses in these languages (and others chosen by the student) are offered to support deeper language acquisition. A unique feature of the Programme is its focus on preparing specialists who, upon completion of the bachelor's degree, primarily work in secondary education institutions where informatics is taught in two languages — Ukrainian and Hungarian.
4 -- Employability of graduates and suitability for further studies	
Employability of graduates	The graduates of the study program may be employed in educational institutions providing general secondary education, and according to the classifier of professions (DK 003:2010), they may hold the following primary positions: 2320 Teacher at a general secondary education institution; 2321 Instructor at a vocational (vocational-technical) education institution.
Further studies	Opportunities for further studies progression to the second level of higher education (Master's degree); attainment of postgraduate education in related or other fields;professional development programmes.
5 -- Teaching and Evaluation	
Teaching and Learning	Teaching involves conducting lectures, seminars, and practical classes, independent work with the possibility of consultations with the instructor, and preparation of a qualification project; problem-based, interactive, project-based, information-computer, self-development, collaborative, and integrative teaching technologies. Student-centered and problem-oriented learning with the acquisition of competencies sufficient for generating new ideas and solving complex problems in the professional field. The final assessment is conducted in the form of defending a qualification project and a comprehensive qualification exam in specialized subjects as well as pedagogy and psychology.
Evaluation	Cumulative evaluation system: this system assesses students based on all in-class and extracurricular educational activities aimed at mastering the curriculum requirements of the educational-professional program: continuous, modular, and final evaluations. Student evaluation takes the following forms: written and oral exams and reports, midterm and module-closing papers, independent work, year-long projects, defending practical work, taking a comprehensive final exam, and defending a thesis. Student performance is evaluated according to the following scales: 1) 4-point national scale (excellent, good, satisfactory, unsatisfactory); 2) 2-level national scale (passed / failed); 3) 100-point scale; 4) ECTS scale (A, B, C, D, E, F, FX). The cumulative assessment at the end of the semester consists of exams and reports, taking into account the points earned through continuous assessment and module-closing evaluations. The final exam consists of a complex examination in professional subjects as well as pedagogy and psychology, and also includes the defense of the thesis.
6 -- Program competencies	

Integral competency	Ability to solve complex special tasks in the field of secondary education, which involves the application of theoretical knowledge and practical skills in the fields of informatics and mathematics, pedagogy, psychology, as well as the theory and methodology of teaching informatics, and which is characterized by the complexity and uncertainty of the conditions for organizing the educational process in secondary educational institutions.
General Competencies (GC)	**1. GC:** The ability to negotiate one's rights and responsibilities as a member of society; awareness of the value of a civil (free democratic) society and the necessity of its sustainable development, the rule of law, and human and citizen rights and freedom in Ukraine. **2. GC:** The ability for interpersonal interaction and teamwork in the professional field, including with involved specialists to provide additional support to individuals with special educational needs, and communication with representatives of other professional groups of various levels. **3. GC:** The ability to preserve and enhance the moral, cultural, and scientific values and achievements of society based on understanding the history and patterns of development of the subject area, its place in the overall system of knowledge about nature and society, and in the development of society, technology, and engineering. **4. GC:** Ability to motivate others, make decisions, and move towards common goals. **5. GC:** Ability to plan one's activities, apply creative approaches to work, demonstrate initiative and entrepreneurship. **6. GC:** Ability for oral and written communication in the state language and for strengthening Ukrainian national and civic identity. Ability for professional communication in a foreign language. **7. GC:** Ability to act autonomously, make well-founded decisions in professional activity and be accountable for their implementation, act socially responsibly and consciously based on current legislation and ethical considerations (motives). **8. GC:** Ability to navigate the information space, search, analyze, and process information from various sources, effectively use digital resources and technologies in the educational process Ability to use information and communication technologies in accordance with ethical and legal norms in the context of European integration processes. **9. GC:** Ability to make decisions and act in accordance with the principle of rejecting corruption and any other manifestations of dishonesty. **10. GC:** Ability to value and respect diversity and multiculturalism, and to recognise the necessity of ensuring equal opportunities for all participants in the educational process. **11. GC:** Ability for abstract thinking, analysis, and synthesis; ability to generate new ideas, identify and solve problems, and apply knowledge in practical situations. **12. GC:** Knowledge and understanding of the subject area and professional area. **13. GC:** Ability to learn and acquire contemporary knowledge.
Professional Competencies of the specialty	**1. PC:** Ability to transfer the system of scientific knowledge, concepts, theories, principles and methods of modern informatics into professional practice and into the process of teaching informatics. **2. PC:** Ability to ensure the teaching of students in the state language; to develop their linguistic and communication skills in the field of informatics; to organise students' education in accordance with the linguistic environment of the educational institution, in the language of the respective indigenous people or national minority of Ukraine. **3. PC:** Ability to set goals, plan and design educational and upbringing processes of students based on different types and forms of learning and cognitive activities; ability to forecast the outcomes of the educational process; ability to model the content of learning in accordance with the mandatory learning outcomes of students.

	4. PC: Ability to select and apply effective teaching, educational and developmental methods and technologies based on constructive and safe interaction with participants in the educational process, and on awareness of one's own and students' feelings and emotions. **5. PC:** Ability to form and develop in students the key, subject-specific and cross-cutting competencies defined by state educational standards; ability to develop value-oriented attitudes in them and to develop their critical thinking. **6. PC:** Ability to implement integrated education for learners. **7. PC:** Ability to carry out objective control and assessment of students' academic achievements on the basis of a competence-based approach; ability to analyse learning outcomes, and to teach students self-assessment and peer assessment. **8. PC:** Ability to form a learner community in which the rights of each person are respected and taken into account, in which everyone feels part of the community; ability to find effective ways of motivating learners towards self-development (self-determination, interest, conscious attitude to learning); ability to guide them towards progress and achievement, taking into account their abilities and interests. **9. PC:** Ability to carry out professional activities in accordance with legislation aimed at protecting the life and health of students (including students with special educational needs in an inclusive educational environment); ability to apply health-preserving technologies during the educational process; ability to conduct preventive and educational work on life safety, sanitation and hygiene, and to develop in students a culture of healthy and safe living. **10. PC:** Ability to engage in subject–subject (equal and learner-centred) interaction with students in the educational process and to involve parents in the educational process on the basis of partnership. **11. PC:** Ability to analyse one's own pedagogical activity and its results, to carry out objective self-assessment and self-correction of professional qualities, and to engage in lifelong learning. **12. PC:** Possession of methods of information modelling; ability to implement an information model using information and communication technologies; ability to conduct a computer experiment, interpret, analyse, and generalise its results. **13. PC:** Ability to apply modern methods for developing and studying algorithms for solving tasks in the modelling of objects and processes, and to implement these algorithms in modern programming languages. 14. PC: Ability to use general-purpose and specialised software tools for solving applied tasks in informatics. **15. PC:** Possession of technologies for debugging, maintaining, and operating computer networks; ability to implement a set of measures aimed at ensuring information security; ability to develop learners' skills in safe work within a computer network. **16. PC:** Ability to solve tasks of varying levels of complexity from the school informatics curriculum, to analyse and evaluate the efficiency of solutions, and to develop the corresponding skills in learners. **17. PC:** Ability to select and use modern information and communication technologies in the educational process and in extracurricular activities; ability to create and use digital educational resources, and to analyse and evaluate the feasibility and effectiveness of their use. **18. PC:** Ability to digitally represent and process textual, numerical, graphical, audio, and video information. **19. PC:** Ability to create conceptual, logical, and physical models, and to design database management systems. **20. PC:** Ability to apply cloud and network information technologies, modern programming languages, and application software packages in professional activity. **21. PC:** Ability to navigate the information space, to search for and critically evaluate information, and to apply it effectively in professional activity.

	22. PC: Ability to use educational and methodological tools, general-purpose and specialised equipment in informatics classrooms, as well as multimedia equipment. **23. PC:** Ability to provide favourable conditions in the educational environment for every learner (including those with special educational needs), taking into account their age-related and individual characteristics, abilities, and interests, and to promote the development of positive self-esteem and identity. **24. PC:** Ability to apply scientific methods of inquiry in the educational process. **25. PC:** Ability to use innovations in professional activity.

7 -- Programme Learning Outcomes

1. PLO: Demonstrates the ability to teach in the official language and to use the language and language tools as a means of motivating students to learn; they are able to develop students' language and communication skills within the subject and during integrated teaching.

2. PLO: Names and analyzes the methods used for the objectives, planning, and implementation of the educational and teaching process of students based on a competency-based approach, taking into account the educational needs of the students; furthermore, classifies the forms, methods, and tools of teaching the subject in general secondary education institutions.

3. PLO: Selects and applies modern educational technologies and methods to develop students' subject competencies; critically evaluates the results of their studies and the effectiveness of the lesson.

4. PLO: Chooses appropriate forms and methods for educating students during lessons and extracurricular activities; analyzes the dynamics of students' personality development, determines effective ways to motivate their self-improvement, and promotes their growth and achievement of results, taking into account their abilities and interests.

5. PLO: Demonstrates knowledge of the basics of computer science and confidently uses its fundamental concepts and categories.

6. PLO: Formulates well-founded professional opinions on the knowledge of the field for both the general public and professionals, using up-to-date terminology and conceptual systems; is able to support their own views with arguments in both the official language and foreign languages.

7. PLO: Is able to effectively use modern information-communication and digital technologies in the educational process, including organising distance learning and supporting professional development; is capable of creating and applying digital educational resources, as well as analysing and integrating information about students' activity and learning efficiency in the electronic environment.

8. PLO: Navigates the information space well, applies modern methods for searching and using scientific information for self-education and professional activity; is able to critically evaluate and verify the authenticity of information and to use it effectively in professional practice.

9. PLO: Demonstrates teamwork skills, adaptability, and the ability to respond quickly to new situations; explains the importance of ensuring equal opportunities and respecting gender equality in professional activity.

10. PLO: Analyses own pedagogical activity and its results, performs objective self-assessment and self-correction of professional skills.

11. PLO: Demonstrate knowledge of the main provisions of regulatory and legal documents regarding professional activity, substantiate the necessity of using the instruments of a democratic rule-of-law state in professional and public activities, and make decisions based on the principles of respect for human rights and freedoms in Ukraine.

12. PLO: Demonstrates the structure of the subject field of informatics and its place in the system of sciences; explains the prospects for the development of informatics and information technologies as well as and their social significance.

13. PLO: Knows and understands the physical, logical, and mathematical foundations of information technologies; explains and applies methods of binary encoding for textual, numerical, graphical, audio, and video information.

14. PLO: Knows and understands the principles of operation and the basic architecture of computer systems and networks; justifies the necessity of using hardware and software tools for configuring and administering a local network; is able to install software.

15. PLO: Determines and applies methods for developing and analysing algorithms needed for solving informatics tasks; describes and applies procedures for evaluating the efficiency of algorithms.
16. PLO: Knows and understands the ethical and legal principles of using information and communication technologies; applies information protection and online safety methods and tools.
17. PLO: Is able to create an information model and implement it using digital technologies; conducts computer experiments, interprets, analyses, and summarises their results.
18. PLO: Is able to implement problem-solving algorithms in programming languages, as well as to select and apply information and communication technologies.
19. PLO: Uses the linguistic, speech, and cultural experiences of students who belong to the indigenous peoples or national minorities of Ukraine in the educational process, especially in teaching computer science.
20. PLO: Is able to develop students' understanding and appreciation of mathematics and computer science based on modern scientific results.
21. PLO: Is able to use digital tools and their basic software, work with operating systems, online services, applications, files, and the internet network.
22. PLO: Demonstrates fundamental knowledge in the main fields of mathematics and computer science.
23. PLO: Is able to solve computer science tasks of various difficulty levels using rational methods.
24. PLO: Knows and adheres to the requirements of the state standard for basic secondary education in professional area.
25. PLO: Exercises their citizen rights and responsibilities, and raises awareness of and reinforces the values of a democratic society in professional activities.
26. PLO: Knows the legal regulations regarding the content of the appropriate level of general secondary education and the organizational forms of the educational process (state standards, framework curricula, model curricula).
27. PLO: Demonstrates the academic knowledge related to the educational field/subject (integrated course), and possesses the methods and technologies by which the teaching content can be modeled according to the mandatory learning outcomes for students.
28. PLO: Selects the didactic materials necessary for students to learn the topics/chapters of the curriculum, taking into account the mandatory learning outcomes.
29. PLO: Uses the content of subjects and integrated courses to develop students' key competencies and overall skills, and teaches students how to apply them in practice.
30. PLO: Applies interdisciplinary connections and the integration of the content of individual educational fields.
31. PLO: Chooses appropriate, modern teaching, educational, and developmental methods and technologies for the educational field/subject (integrated course), according to the topic, goal, and objectives of the lesson.
32. PLO: Applies methods and technologies that develop students' critical thinking.
33. PLO: Is familiar with methodologies that shape and develop students' value-based attitudes.
34. PLO: Uses educational-methodological tools, the specialized and general equipment of subject-specific classrooms (according to the subject area), as well as multimedia tools in the educational process.
35. PLO: Adheres to the principles of academic integrity and copyright regulations when using and distributing electronic (digital) educational resources.
36. PLO: Is aware of the impact of students' age-specific characteristics on various areas of their development and psychological processes, and applies forms and methods of working with students accordingly; recognizes students' individual characteristics (learning styles, temperament types, developmental traits, etc.) and takes these into account when planning and implementing the educational process.
37. PLO: Understands the basic concepts and principles of pedagogy and psychology; takes into account learners' age-related and individual characteristics and their psycho-emotional state in the educational process, for the purpose of forming learning motivation, organising cognitive activity, and developing positive self-esteem and identity.
38. PLO: Supports cooperation among learners to promote their social development, and develops skills of mutual assistance and collaboration.
39. PLO: Is able to recognise and understand their own feelings, emotions, and needs, as well as the emotional states of other participants in the educational process; is able to manage their own emotional states and knows methods for preventing professional burnout.
40. PLO: Is able to cooperate constructively and safely with participants in the educational process, respecting diverse opinions and viewpoints, and accepting and valuing differences.
41. PLO: Strives to engage in partnership-based cooperation with participants in the educational process.

42. PLO: Provides pedagogical support for learners with special educational needs in an inclusive educational environment.
43. PLO: Selects and uses appropriate health-preserving tools and resources in the educational environment; possesses methods necessary for preventive and awareness-raising activities and for ensuring life safety; complies with legislation concerning the protection of learners' lives and health, as well as hygiene and health regulations; contributes to the development of learners' culture of healthy and safe living.
44. PLO: Is able to provide first aid to participants in the educational process and recognise external signs of health deterioration.
45. PLO: Creates favourable conditions in the educational environment that take into account each learner's individual needs, abilities, capacities, and interests.
46. PLO: Is able to plan the educational process based on the pedagogical programme of the educational institution and subject (or integrated course) curricula, taking into account the requirements of the State Standard for basic secondary education.
47. PLO: Designs lessons according to competence-based, activity-oriented, and learner-centred pedagogical approaches.
48. PLO: Is able to organise different types of learning activities and apply various learning and inquiry-based tasks for learners.
49. PLO: Applies different types of assessment to measure learners' learning outcomes (formative, diagnostic, summative, etc.) using appropriate assessment methods and criteria.
50. PLO: Analyses learners' learning outcomes to ensure they can be taken into account in the further educational process; applies methods and procedures that develop learners' self-assessment and peer-assessment skills.
51. PLO: Determines the applicability of various scientific inquiry methods in the educational process, in alignment with the content of the learning material.
52. PLO: Selects and applies innovative forms, methods, procedures, and instructional tools in pedagogical practice.
53. PLO: Uses diverse approaches to problem-solving, generates new ideas, and shows openness to the ideas and solutions of other participants in the educational process.
54. PLO: Identifies their own learning and professional development needs and selects appropriate types, forms, and content of further training programmes.
55. PLO: Provides and processes various types of data using general-purpose and specialised software tools.

8 -- Resources required for the implementation of the programme	
Human Resources	The qualitative composition of the academic and teaching staff involved in the Bachelor's degree programme "Secondary Education (Informatics)" meets the licensing requirements for educational activities at the first (Bachelor's) level of higher education. The educational process is ensured by the academic and teaching staff of the institute's departments, including specialists holding Doctor of Science (DsC) and Candidate of Science (PhD) degrees, as well as professors, associate professors, and senior lecturers. The instructors responsible for the implementation of the programme possess the required basic qualifications, an adequate number of publications in professional and scientometric journals, and actively participate in scientific–practical conferences of various levels (international, national, regional). The teaching staff implementing the programme regularly participate in professional development activities in accordance with the regulations on staff training and professional growth. In addition, they also carry out occasional professional practice and development, for example through participation in grant programmes.
Material and Technical Resources	The available premises meet the standards for regulated area. The educational programs of the institute are fully supported by classrooms, all of which are fully equipped with multimedia devices. For practical training, particularly in

	programming, information retrieval, and results processing, specialized computer classes are available with the necessary software and unlimited open Internet access. Infrastructure for rest and ealth maintenance is also provided (canteen, sports ground, gym, fitness room, medical office, etc.).
Information and Educational-Methodological Resources	The information and educational-methodological resources for the professional training of bachelor's students in the Educational and Professional Program "Secondary Education (Informatics)" meet the licensing requirements. - official website (https://kme.org.ua/en/); - unified educational platform "IRIS" (https://irisz.kmf.uz.ua/#/orarend); - official page of the department (https://kmf.uz.ua/uk/strukturni-pidrozdily/kafedri/kafedra-matematiki-ta-informatiki/); - wireless Internet access points; - unlimited Internet access; - scientific library, reading rooms; - corporate email; - study and work schedules; - educational and methodological complexes of disciplines, syllabuses.

9 -Academic Mobility	
National Credit Mobility	On general grounds within the territory of Ukraine. Mobility is carried out on the basis of bilateral agreements between the Ferenc Rákóczi II Transcarpathian Hungarian College of Higher Education and educational institutions of partner countries.
International Credit Mobility	The right of higher education students to academic mobility is implemented through international programs and projects, cooperation agreements in the field of education and science between the institute and partner institutions, or on the student's own initiative, supported by the institute's administration on the basis of individual invitations. The forms of academic mobility at the institute include studying within mobility programs, language or scientific internships, and participation in industrial (practical) training. The Ferenc Rákóczi II Transcarpathian Hungarian College of Higher Education participates in a project within the ERASMUS+ program, as well as in the "Makovecz" international student mobility program, which has been operating since 2016 in the countries of the Carpathian Basin – Hungary, Ukraine, Romania, Slovakia, and Serbia.
Education of Foreign Higher Education Students	Education of foreign students is not conducted.

10. Forms of Assessment of Higher Education Students	
Forms of Assessment of Higher Education Students	The forms of attestation are: a comprehensive qualification examination in the major subjects, pedagogy and psychology, and the bachelor thesis.
Requirements for the Bachelor Thesis	According to the curriculum, students of Ferenc Rákóczi II Transcarpathian Hungarian College of Higher Education prepare and defend qualification theses. The bachelor thesis is the final academic result that allows the demonstration of a student's level of theoretical knowledge, practical training, and ability to work independently in the chosen scientific field. The thesis must be a completed scientific work, characterized by elements of scientific novelty and relevance of the topic, possess practical and theoretical significance, and contain a set of results and statements intended for public defense. The qualification thesis of a student is subject to mandatory academic plagiarism checking in accordance with the Ferenc Rákóczi II Transcarpathian Hungarian College of Higher Education Academic Integrity Regulations. Full-text electronic versions of the qualification theses, after their defense, are submitted by the respective departments to the Ferenc Rákóczi II Transcarpathian Hungarian College of Higher Education Repository of Academic Texts, which operates as a local repository of the National Repository of Academic Texts.
Requirements for the Assessment Exam	The exam is intended to assess the level of achievement of the learning outcomes described in this educational program.
Requirements for Public Defense (Presentation)	A mandatory condition for admission to the official defense of the bachelor thesis before the Examination Committee is the successful completion of the academic plagiarism check. Bachelor theses are evaluated by the Examination Committee during the defense. During the public defense, the candidate for the bachelor's degree must demonstrate the ability to clearly and confidently present the content of the conducted research, respond to questions with reasoned arguments, and engage in scientific discussion. The student's presentation must be accompanied by presentation materials and an explanatory note intended for public viewing. The decision of the Examination Committee regarding the awarding of the bachelor's degree, the assignment of the professional qualification, and the issuance of the bachelor's diploma based on the results of the final attestation is announced on the day of the final attestation after the minutes of the Examination Committee meetings have been duly completed.

2. Free Elective Courses

A total of 60 credits (25%) are allocated for student-selected courses. Higher education students have the opportunity to choose courses from the institute-wide list of educational components.

3. Requirements for the Internal Quality Assurance System of Higher Education

The higher education institution operates a system for ensuring the quality of educational activities and higher education (internal quality assurance system), which includes the following procedures and measures:

1) defining the principles and procedures for ensuring the quality of higher education;
2) monitoring and periodic review of educational programs;
3) annual evaluation of students enrolled in higher education and the institution's academic and pedagogical staff;
4) professional development of pedagogical, scientific, and academic staff through internships or advanced training courses, with a certificate of completion, at least once every five years, or via the defense of a dissertation;
5) provision of necessary resources for organizing the educational process, particularly for students' independent work, for each educational program;
6) creation of information systems for effective management of the educational process;
7) ensuring the transparency of information about educational programs, higher education levels, and qualifications;
8) establishment of an effective system to prevent academic plagiarism in scientific works of the institution's staff and students etc.

The system for ensuring the quality of educational activities and higher education (internal quality assurance system) of the higher education institution is evaluated by the National Agency for Higher Education Quality Assurance upon the institution's submission.

4. Requirements of Professional Standards

During the development of the Educational Program in the specialty A4.09 "Secondary Education (Informatics)", the Order of the Ministry of Education and Science of Ukraine dated August 29, 2024, No. 1225 "On Approval of the Professional Standard for the Professions of Teacher of General Secondary Education Institution" was taken into account, as well as the draft higher education standard for specialty 014 Secondary Education (by subject specializations) at the first (bachelor) level of higher education, published for discussion on April 17, 2024.

5. Program Scope by Compulsory and Elective Components

The total scope of the educational and professional program is 240 ECTS credits. The cycles of general, professional, and practical training – the compulsory components of the program – amount to 180 ECTS credits (75%). The elective component chosen by students amounts to 60 ECTS credits (25%).

6. List of components of the educational and professional program and their logical sequence

Course code	Components of the educational program (academic courses, course projects/papers, internships, qualification thesis)	Number of credits ECTS	Form of final assessment
1	**2**	**3**	**4**
1. COMPULSORY ACADEMIC DISCIPLINES			
1. 1. General Training cycle (GT)			
GT 1	History and culture of Ukraine	3	Pass/Fail Assessment
GT 2	History and culture of the hungarian people	3	Pass/Fail Assessment
GT 3	Philosophy	3	Pass/Fail Assessment
GT 4	Foreign language for professional purposes	3	Examination
GT 5	Ukrainian language for professional purposes	3	Pass/Fail Assessment
Total for the cycle		**15**	
1.2. Professional Training cycle (PT)			
PT1	Psychology	4	Examination
PT2	Mathematical analysis	10	Examination
PT3	Algebra and geometry	8	Examination
PT4	Informatics and basics of algorithmization	9	Examination
PT5	Modern information technologies	5	Pass/Fail Assessment
PT6	Pedagogy	6	Pass/Fail Assessment, Examination
PT7	Discrete mathematics	4	Examination
PT8	Algorithms and data structures	4	Examination
PT9	Computer science teaching methodology	14	Examination
PT10	Mathematical logic and algorithm theory	4	Examination
PT11	Database management systems	4	Pass/Fail Assessment
PT12	The basics of scientific research and academic integrity	3	Pass/Fail Assessment
PT13	Modern programming languages	4	Pass/Fail Assessment
PT14	Theory of probability and mathematical statistics	6	Examination
PT15	Course paper on methods of teaching computer science	2	Pass/Fail Assessment
PT16	Fundamentals of computer graphics	3	Examination
PT17	Artificial intelligence methods and systems	5	Examination
PT18	Modern technologies for the development of educational information resources and systems	3	Examination
PT19	Web programming	4	Examination
PT20	Mathematical software packages	4	Examination
PT21	Object-oriented programming technology	4	Examination
PT22	Calculation methods	4	Examination
PT23	General physics	3	Examination
PT24	Operating systems	3	Examination
PT25	Computer networks	3	Examination
PT26	Optimisation and operations research methods	4	Examination

PT27	Differential equations	5	Examination
Total for the cycle		**132**	
1. 3. Practical Training and Assessment (PTA)			
PTA 1	Pedagogical practice (Practice of producing scientific texts and visual aids in computer science)	3	Pass/Fail Assessment
PTA 2	Educational practice (Educational computing practice)	3	Pass/Fail Assessment
PTA 3	Pedagogical internship (Professional)	18	Pass/Fail Assessment
PTA 4	Teaching practice (Camp practice)	3	Pass/Fail Assessment
PTA 5	Preparation of the bachelor thesis	3	Pass/Fail Assessment
C	Certification	3	Examination
Total for the cycle		**33**	
Total for compulsory courses		**180**	
2. Elective Components of the Educational Program			
2.1. Free Elective Courses (FEC)			
FEC1	Student's Free Elective Course	4	Pass/Fail Assessment
FEC2	Student's Free Elective Course	4	Pass/Fail Assessment
FEC3	Student's Free Elective Course	4	Pass/Fail Assessment
FEC4	Student's Free Elective Course	4	Pass/Fail Assessment
FEC5	Student's Free Elective Course	4	Pass/Fail Assessment
FEC6	Student's Free Elective Course	4	Pass/Fail Assessment
FEC7	Student's Free Elective Course	4	Pass/Fail Assessment
FEC8	Student's Free Elective Course	4	Pass/Fail Assessment
FEC9	Student's Free Elective Course	4	Pass/Fail Assessment
FEC10	Student's Free Elective Course	4	Pass/Fail Assessment
FEC11	Student's Free Elective Course	4	Pass/Fail Assessment
FEC12	Student's Free Elective Course	4	Pass/Fail Assessment
FEC13	Student's Free Elective Course	4	Pass/Fail Assessment

FEC14	Student's Free Elective Course	4	Pass/Fail Assessment
FEC15	Student's Free Elective Course	4	Pass/Fail Assessment
Total Elective Credits		**60**	
Total Program Credits		**240**	
Basic Military Training*			
BMT	Theoretical Foundations of Basic Military Training	3	Pass/Fail Assessment

* Educational component "Theoretical Foundations of Basic Military Training" must be completed by male citizens of Ukraine who are studying in full-time higher education programs.
Exemptions from basic general military training apply to those who:
– are deemed unfit for military service due to health conditions;
– completed military service in other countries prior to acquiring Ukrainian citizenship;
– have previously completed military service;
– possess a certificate confirming completion of basic training and acquisition of a military registration specialty;
– are foreign citizens enrolled in higher education.
No other grounds for exemption from BMT are provided for by law.

7. Requirements for the structure of course syllabi, internships, and individual assignments

Learning outcomes for a bachelor's degree are defined by types of educational activity as a specification of the program (integrative) learning outcomes within the syllabi of academic courses, internships, and individual assignments, and are used as criteria for selecting the necessary content modules and corresponding instructional elements.

The alignment of the educational program with the training programs across various types of educational activity ensures the quality of higher education at the design stage.

A course syllabus also defines the total time required for mastery, the form of final assessment, the list of prerequisite courses, the requirements for informational and methodological support, the requirements for assessment tools and evaluation criteria, and the requirements for the structure of the working syllabus of the course.

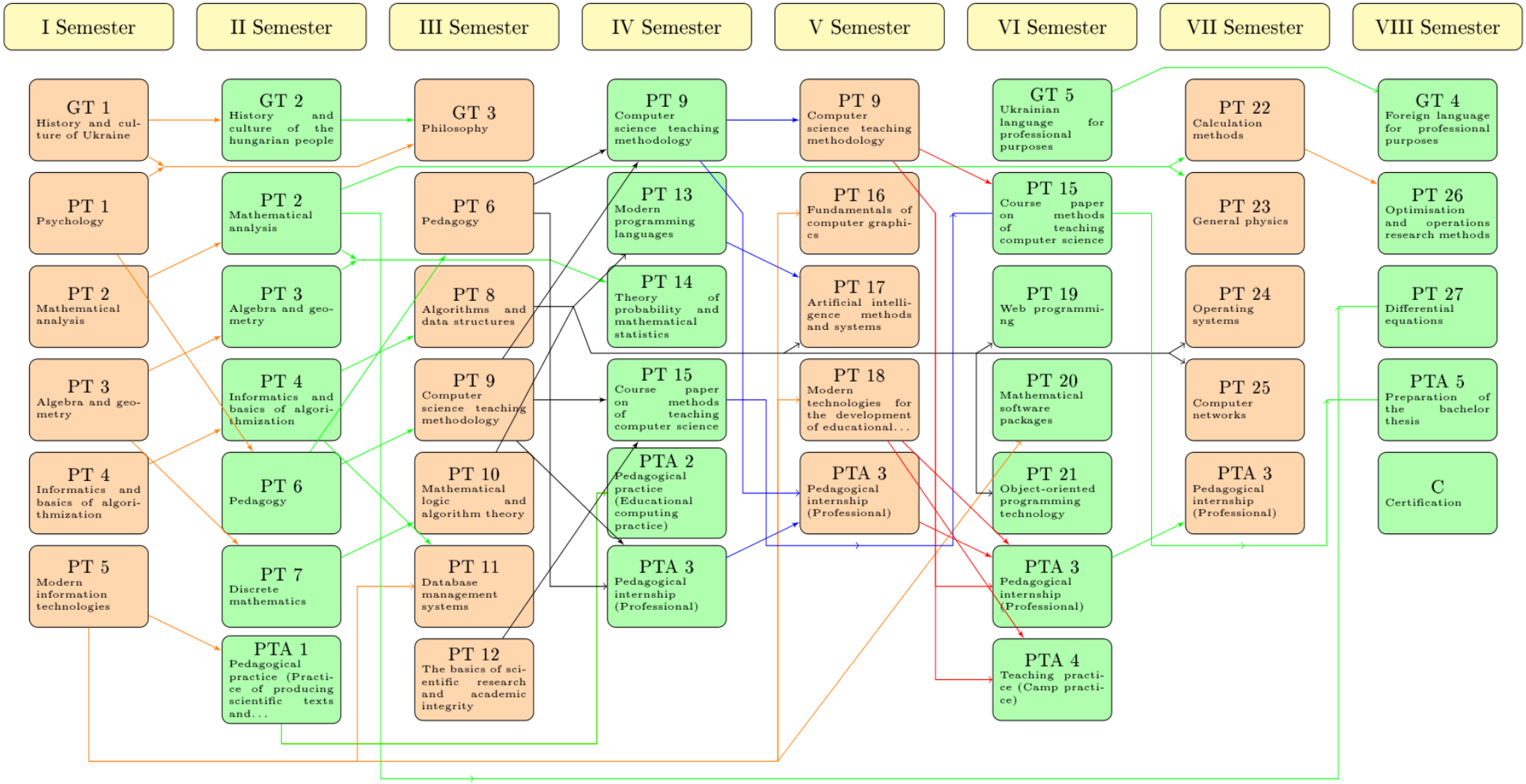
8. Form of assessment of higher education applicants

The final assessment is carried out by evaluating the degree of competency formation. The form of assessment consists of completing a qualification examination and defending a qualification thesis, with the awarding of the educational qualification "Bachelor of Secondary Education (Informatics), Teacher of Informatics." The assessment is conducted openly and publicly.

9. Duration of studies by mode of delivery

Full-time study – 3 years 10 months; part-time study – 3 years 10 months.

10. Structural and logical scheme



11. Final provisions

The educational-professional program must be published on the institute's website before the start of admissions to the higher education institution, in accordance with the "Admission Rules."

The head of the graduating department and the program guarantor for the specialty are responsible for implementing the educational-professional program and ensuring the quality of higher education.

12. List of regulatory documents on which the educational-professional program is based

1. Law of Ukraine "On Higher Education." Access mode: http://zakon4.rada.gov.ua/laws/show/1556-18
2. Methodological Recommendations for the Development of Higher Education Standards: Approved by the Higher Education Sector of the Scientific-Methodological Council of the Ministry of Education and Science of Ukraine, Protocol No. 3 of 29.03.2016. Access mode: http://mon.gov.ua/
3. National Qualifications Framework: Appendix to the Resolution of the Cabinet of Ministers of Ukraine of November 23, 2011, No. 1341. Access mode: http://zakon5.rada.gov.ua/laws/show/1341-2011-%D0%BF
4. On Approval of Amendments to the National Classifier of Ukraine DK 003-2010: Order of the Ministry of Economic Development of Ukraine, 02.09.2015, No. 1084. Access mode: http://buhgalter911.com/ShowArticle.aspx?a=272508
5. On the Features of Implementing the List of Fields of Knowledge and Specialties for Higher Education Training, approved by the Resolution of the Cabinet of Ministers of Ukraine No. 266 of April 29, 2015: Order of the Ministry of Education and Science of Ukraine No. 1151 of 06.11.2015. Access mode: http://zakon2.rada.gov.ua/laws/show/z1460-15
6. Resolution of the Cabinet of Ministers of Ukraine of 30.08.2024 No. 1021 "On the Approval of the List of Fields of Knowledge and Specialties for Higher and Pre-Higher Professional Education." Access mode: https://zakon.rada.gov.ua/laws/show/266-2015-%D0%BF#Text
7. EQF-LLL – European Qualifications Framework for Lifelong Learning. Access mode: https://ec.europa.eu/ploteus/sites/eac-eqf/files/brochexp_en.pdf
8. QF-EHEA – Qualifications Framework of the European Higher Education Area. Access mode: http://www.ehea.info/article-details.aspx?ArticleId=67
9. On Approval of the Professional Standard for the Professions "Primary School Teacher of an Educational Institution," "Teacher of a General Secondary Education Institution," "Primary Education Teacher (with Junior Specialist Diploma)." Access mode: www.me.gov.ua
10. On Approval of the Concept for the Development of Pedagogical Education. Access mode: https://mon.gov.ua/ua/npa/pro-zatverdzhennya-koncepciyi-rozvitku-pedagogichnoyi-osviti
11. Draft Higher Education Standard in the Specialty 014 "Secondary Education" at the First (Bachelor) Level of Higher Education. Access mode: https://mon.gov.ua/ua/news/mon-proponuye-do-gromadskogo-obgovorennya-proyekt-standartu-vishoyi-osviti-zi-specialnosti-014-serednya-osvita-na-pershomu-bakalavrskomu-rivni-vishoyi-osviti
12. Resolution of the Cabinet of Ministers of Ukraine of June 21, 2024, No. 734 "On the Procedure for Conducting Basic General Military Training for Citizens of Ukraine Studying in Higher Education Institutions and Police Officers." Access mode: https://zakon.rada.gov.ua/laws/show/734-2024-%D0%BF#Text
13. Law of the Verkhovna Rada of Ukraine "On Ensuring the Functioning of the Ukrainian Language as the State Language," Document 2704-VIII, current version as of 31.12.2023, basis – 2801-IX. Access mode: https://zakon.rada.gov.ua/laws/show/2704-19#Text
14. Order of the Ministry of Education and Science of Ukraine of 25.07.2023 No. 898 "Methodological Recommendations for Ensuring Quality Study, Teaching, and Use of the English Language in Higher Education Institutions of Ukraine." Access mode: https://zakon.rada.gov.ua/rada/show/v0898729-23#Tex

APPENDICES

Table 1. Matrix of Alignment of Program Competencies with the Components of the Educational Program

	GC1	GC2	GC3	GC4	GC5	GC6	GC7	GC8	GC9	GC10	GC11	GC12	GC13	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14	PC15	PC16	PC17	PC18	PC19	PC20	PC21	PC22	PC23	PC24	PC25
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GT2	+		+			+				+																								+				
GT3	+			+						+	+																											
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GT5		+				+									+																							
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PTA3	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+				+	+			+		+	+	+	+
PTA4	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+				+	+			+		+	+	+	+
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Table 2. Matrix of Ensuring Program Learning Outcomes (PLOs) through Corresponding Components of the Educational-Professional Program

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11	PLO12	PLO13	PLO14	PLO15	PLO16	PLO17	PLO18	PLO19	PLO20	PLO21	PLO22	PLO23	PLO24	PLO25	PLO26	PLO27	PLO28	PLO29	PLO30	PLO31	PLO32	PLO33	PLO34	PLO35	PLO36	PLO37	PLO38	PLO39	PLO40	PLO41	PLO42	PLO43	PLO44	PLO45	PLO46	PLO47	PLO48	PLO49	PLO50	PLO51	PLO52	PLO53	PLO54	PLO55
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PTA4	+	+	+	+			+		+	+	+								+			+		+	+	+	+		+		+		+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+			
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