Curriculum of the degree programme Ва Computer Science

| **№** | **Module title** | **Module weight** | **The form of final control on the module** | **Discipline** | **Discipline**  **weight** | | **The form of control on the discipline** | **Semester** | | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | |
| **Fundamental modules (all module’s disciplines are compulsory for learning)** | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Preparation on Foreign Language | 9 | Examination | Foreign language | 9 | | Computer test | 4 | | 5 | |  | |  | |  | |  | |  | |  | |
| 2 | Preparation on Official language | 9 | Examination | Kazakh (Russian) language | 9 | | Computer test | 4 | | 5 | |  | |  | |  | |  | |  | |  | |
| 3 | Basic Social and Humanitarian Knowledge | 7 | Complex exam | Modern History of Kazakhstan | 5 | | Oral quiz | 5 | |  | |  | |  | |  | |  | |  | |  | |
| Manash studies | 2 | | Computer test | 2 | |  | |  | |  | |  | |  | |  | |  | |
| 4 | Innovation in Education | 11 | Complex exam | Philosophy | 5 | | Computer test |  | |  | | 5 | |  | |  | |  | |  | |  | |
| Management in education | 3 | | Computer test |  | |  | | 3 | |  | |  | |  | |  | |  | |
| Criteria-based assessment technology | 3 | | Computer test |  | |  | |  | | 3 | |  | |  | |  | |  | |
| 5 | Pedagogics and psychology | 12 | Complex exam | Psychology | 5 | | Computer test |  | |  | |  | | 5 | |  | |  | |  | |  | | |
| Pedagogics | 5 | | Computer test |  | |  | |  | | 5 | |  | |  | |  | |  | | |
| Psychological and pedagogical practice | 2 | | Assessment |  | |  | |  | | 2 | |  | |  | |  | |  | | |
| 6 | Age Specific Psycho-Physiological Features | 7 | Complex exam | Pedagogical Continuous Practice 1 | 2 | | Assessment |  | | 2 | |  | |  | |  | |  | |  | |  | | |
| Study Practice 1 | 1 | | Assessment |  | | 1 | |  | |  | |  | |  | |  | |  | | |
| Study Practice 2 | 1 | | Assessment |  | | 1 | |  | |  | |  | |  | |  | |  | | |
| Physiology of schoolchildren development | 3 | | Computer test | 3 | |  | |  | |  | |  | |  | |  | |  | | |
| 7 | Theoretical Computer Science | 8 | Complex exam | Information and communication technologies | 5 | | Computer test |  | |  | | 5 | |  | |  | |  | |  | |  | | |
| Theoretical Bases of Computer Science | 3 | | Computer test |  | |  | | 3 | |  | |  | |  | |  | |  | | |
| 8 | Health-improving (beginner level) | 4 | Differentiated test | Physical Training | 4 | | Differentiated test | 2 | | 2 | |  | |  | |  | |  | |  | |  | | |
| 9 | Health-improving (continuing level) | 6 | Differentiated test | Physical Training | 4 | | Differentiated test |  | |  | | 2 | | 2 | |  | |  | |  | |  | | |
| 10 | Methodological Bases of Computer Science Teaching | 10 | Complex exam | Methodology of Computer Science Teaching | 5 | | Computer test |  | |  | |  | |  | | 5 | |  | |  | |  | | |
| Pedagogical Continuous Practice 2 | 2 | | Assessment |  | |  | |  | | 2 | |  | |  | |  | |  | | |
| Theory and Methodology of Educational Work | 3 | | Computer test |  | |  | |  | | 3 | |  | |  | |  | |  | | |
| 11 | Inclusive education | 7 | Complex exam | Inclusive education | 3 | | Computer test |  | |  | |  | |  | | 3 | |  | |  | |  | | |
| Production (pedagogical) Practice 1 | 4 | | Assesment |  | |  | |  | |  | |  | | 4 | |  | |  | | |
| 12 | Professional Language Training | 6 | Complex exam | Professional Kazakh (Russian) Language | 3 | | Oral exam |  | |  | |  | |  | | 3 | |  | |  | |  | | |
| Profession oriented foreign Language | 3 | | Computer test |  | |  | |  | |  | |  | | 3 | |  | |  | | |
| 13 | Final Practice | 15 | Complex exam | Production (pedagogical) Practice 2 | 10 | | Assesment |  | |  | |  | |  | |  | |  | |  | | 10 | | |
| Pre-diploma Practice | 5 | | Assesment |  | |  | |  | |  | |  | |  | |  | | 5 | | |
| 14 | Final Attestation | 8 | Complex exam | State Examination in Specialty | 1 | | Oral exam |  | |  | |  | |  | |  | |  | |  | | 1 | | |
| Writing and Defence of a Diploma Paper (project) | 7 | | Defence of diploma thesis |  | |  | |  | |  | |  | |  | |  | | 7 | | |
| **Modules of elective disciplines (include elective courses)** | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Bases of Programming | 15 | Complex exam | Algorithmization and bases of programming / Algorithms and data structures | 6 | | Computer test | | 6 | |  | |  | |  | |  | |  | |  | |  | |
| Introduction to profession / Introduction to specialty | 3 | | Computer test | |  | | 3 | |  | |  | |  | |  | |  | |  | |
| Programming Technology/Programming Languages | 6 | | Computer test | |  | | 6 | |  | |  | |  | |  | |  | |  | |
| 16 | Legal training | 3 | Examination | Basics of law and anti-corruption culture / Prevention of mental health and suicide prevention / Ecology and sustainable development / Ethics and psychology of business communication | 3 | | Computer test | | 3 |  | |  | |  | |  | |  | |  | |  | | |
| 17 | Social and economic knowledge | 8 | Complex exam | Gender perspective in education/ Energy-saving technologies in modern sectors of the economy/ Fundamentals of life safety/  Cultural studies / Fundamentals of financial literacy / Psychology/ | 3 | | Computer test | |  |  | | 3 | |  | |  | |  | |  | |  | |
| Political and Social Sciences / Economics and Business / Information Management and Quality Management / Culture and Religion | 5 | | Computer test | |  |  | |  | | 5 | |  | |  | |  | |  | |
| 18 | Computer literacy | 11 | Complex exam | Theory of Computer Science Teaching / Theoretical bases of computer science education | 6 | | Defence of a course paper | |  | |  | |  | | 6 | |  | |  | |  | |  | |
| Architecture of Computer Networks/Computer architecture | 5 | | Computer test | |  | |  | | 5 | |  | |  | |  | |  | |  | |
| 19 | Hardware Support of the Educational Process | 10 | Complex exam | Bases of organization of scientific-pedagogical research / Bases of scientific research and innovative activities organization | 5 | | Computer test | |  | |  | |  | |  | |  | | 5 | |  | |  | |
| Organization of Computer Networks/ Global and computer Networks | 5 | | Computer test | |  | |  | |  | |  | | 5 | |  | |  | |  | |
| 20 | Pedagogical Systems Modeling | 25 | Complex exam | Current trends in robotics / School robotics | 5 | | Computer test | |  | |  | |  | |  | |  | |  | | 5 | |  | |
| Management of information projects/Management of Information Systems | 5 | | Computer test | |  | |  | |  | |  | |  | |  | | 5 | |  | |
| Nonstandard tasks solving in Computer Science/Practical work of task solving in Computer Science | 5 | | Computer test | |  | |  | |  | |  | |  | |  | | 5 | |  | |
| Methods of Pedagogical Systems’ Modeling/Mathematic Methods of Pedagogical Researches Processing | 5 | | Defence of a course paper | |  | |  | |  | |  | |  | |  | | 5 | |  | |
| Innovative Methods of Computer Science Teaching/Private Methods of Computer Science Teaching | 5 | | Computer test | |  | |  | |  | |  | |  | |  | | 5 | |  | |
| **Educational trajectory: Computer Science and Mathematics** | | | | | | | | | | | | | | | | | | | | | | | |
| 21a | Mathematics | 11 | Complex exam | Computer mathematical systems | 8 | Computer test | | |  | | 8 | |  | |  | |  | |  | |  | |  | |
| Elementary mathematics | 3 | Computer test | | | 3 | |  | |  | |  | |  | |  | |  | |  | |
| 22a | Applied Mathematics | 36 | Complex exam | Theory of Databases | 8 | Computer test | | |  | |  | |  | |  | | 8 | |  | |  | |  | |
| Solving of tasks in Mathematics using a computer | 6 | Defence of a course paper | | |  | |  | |  | |  | | 6 | |  | |  | |  | |
| Development of Internet Applications | 8 | Computer test | | |  | |  | |  | |  | |  | | 8 | |  | |  | |
| System and Application Software | 6 | Computer test | | |  | |  | |  | |  | |  | | 6 | |  | |  | |
| Information Technologies of Mathematics Teaching | 8 | Defence of a course paper | | |  | |  | |  | |  | |  | | 8 | |  | |  | |
| 23a | Mathematical modeling | 6 | Examination | Mathematical modeling on computer | 6 | Computer test | | |  | |  | | 6 | |  | |  | |  | |  | |  | |
| 24a | Training systems | 6 | Examination | Modeling of interactive educational systems in Mathematics | 6 | Defence of a course paper | | |  | |  | |  | |  | |  | |  | | 6 | |  | |
| **Educational trajectory: Computer Science and Programming** | | | | | | | | | | | | | | | | | | | | | | | |
| 21b | Mathematics for programmers | 11 | Complex exam | Computer Mathematics | 3 | Computer test | | | 3 | |  | |  | |  | |  | |  | |  | |  | |
| Numerical information processing methods | 8 | Computer test | | |  | | 8 | |  | |  | |  | |  | |  | |  | |
| 22b | Programming | 36 | Complex exam | Databases and Bases of Knowledge | 8 | Computer test | | |  | |  | |  | |  | | 8 | |  | |  | |  | |
| Operational Systems and System Programming | 6 | Computer test | | |  | |  | |  | |  | |  | | 6 | |  | |  | |
| Artificial intelligence and design of intelligent information systems | 8 | Defence of a course paper | | |  | |  | |  | |  | |  | | 8 | |  | |  | |
| Client-server applications development | 8 | Computer test | | |  | |  | |  | |  | |  | | 8 | |  | |  | |
| WEB-technologies and programming | 6 | Defence of a course paper | | |  | |  | |  | |  | | 6 | |  | |  | |  | |
| 23b | Modeling of information systems | 6 | Examination | Modeling of information systems | 6 | Computer test | | |  | |  | | 6 | |  | |  | |  | |  | |  | |
| 24b | Design of Information Systems Applications | 6 | Defence of a course paper | Design of Information Systems Applications | 6 | Defence of a course paper | | |  | |  | |  | |  | |  | |  | | 6 | |  | |
|  |  | **TOTAL ECTS on semesters** | | |  |  | | | 32 | | 33 | | 32 | | 33 | | 30 | | 34 | | 31 | | 23 | |