

## QUALIFICATION DESCRIPTION

PhD Program	Informatics
Educational and Scientific Degree	PhD degree, level 8 under the National Qualifications Framework <sup>1</sup>
Area	4. Natural sciences, mathematics and informatics
Professional Field	4.6 Informatics and Computer Sciences
Form of Training	Full-time / part-time / self-study / under Art. 21, para. 7 of the Higher Education Act
Duration of Training	Full-time up to 3 years/Part-time up to 4 years/ Self-study and Under Art. 21, para. 7 of the Higher Education Act up to 5 years
Form of graduation	Defense of PhD Thesis

### OBJECTIVES OF THE TRAINING

The PhD program in Informatics aims to prepare highly qualified specialists in computer science who can apply their knowledge and skills in various scientific and applied fields. The program focuses on developing research skills, critical thinking, and the ability to solve complex problems through high-performance methods and techniques, cloud architectures, and artificial intelligence.

Objectives of the doctoral program.

- Creation of highly qualified scientific, research and teaching staff with experience in experimental activities in the field of Informatics and Computer Science, who are given freedom of study and research, considering the differences in their interests;
- Integration of research and training of PhD students through the reproduction and multiplication of new knowledge and marketable scientific products;
- Sustainable development of academic activities following international quality standards in the training of doctoral students;
- Activation of the academic initiative and scientific potential of IICT for implementing projects and research that address new market needs and the challenges of a changing environment.

### CONTENT OF THE TRAINING

The PhD program in Informatics has been developed following the requirements and provisions of the Higher Education Act, the Law on the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for the Implementation of the Law on the Development of Academic Staff in the Republic of Bulgaria, Regulations on the Conditions and Procedure for Acquiring Scientific Degrees and Academic Positions at the Bulgarian Academy of Sciences and the Regulations on the Specific Conditions for Acquiring Scientific Degrees and for Occupying Academic Positions at IICT-BAS. It was discussed and adopted at a meeting of the Institute's

Scientific Council. The training of PhD students is carried out according to an individual educational plan per the dissertation's chosen topic. In the individual plan, according to the Program of the doctoral program, the mandatory for the PhD student is noted in detail the general educational, language, IT and specialized courses, scientific research (literature research, empirical research), approbation of the results on the topic of the dissertation (participation in doctoral and scientific forums, publications in reputable journals), etc. PhD students submit an annual attestation of the work done according to their individual plan, and if necessary, an update. The yearly attestation of each PhD student is discussed and adopted at a meeting of the Institute's Scientific Council. According to the Law on Dissertations, full-time PhD students also submit quarterly reports on the work carried out on the dissertation.

## **KNOWLEDGE, SKILLS AND PROFESSIONAL COMPETENCES**

**Basic competencies** consisting of:

- In-depth knowledge of theories, concepts, principles and models related to computer science;
- ability to make comparative analyses and choose an appropriate solution from among alternative solutions;
- Ability to propose new concepts, principles, and models for solving a specific problem.

**Scientific and specialized competencies** (in the scientific field) – presenting knowledge and skills necessary for the dissertation research:

- carrying out research in the field of informatics and computer science;
- conducting interdisciplinary research;
- formulating and preparing proposals for research projects;
- dissemination of the acquired knowledge in the form of publications.

**Additional skills:**

- ability to work together as members of scientific teams and develop organizational skills;
- Being interested in modern trends and innovations in technology and maintaining stable professional growth and self-improvement;
- Good presentation skills.

In addition to specific knowledge, emphasis is also placed on the acquisition of skills such as using specialized literature (including in a foreign language), systematising, generalising, and analysing existing statements, independently conducting scientific and applied research, and shaping and presenting the results in an understandable, logical, precise, and correct way.

Dissertation topics are formulated on real problems dictated by company needs. PhD students are encouraged to focus their research activities in promising areas that meet the country's public expectations and needs, which would also favour their own realisation after the successful completion of this educational and scientific degree.

## **PROFESSIONAL REALIZATION**

The knowledge and skills accumulated in the educational cycle allow graduates to realize themselves in research, production, implementation, and design units that increase the efficiency of existing and innovative productions. The training provides knowledge and skills for solving

complex scientific problems, managing units related to the creation of information products, and training students in higher education institutions.

After graduating from this specialty, doctors can continue their studies in postdoctoral programs in the country and abroad.

*The Qualification description is approved by the Scientific Council of IICT – BAS on 26.3.2025 (Record № 3).*

Approved by:

corr. mem. Sv. Margenov