

## QUALIFICATION DESCRIPTION

PhD Program	Automated systems for information processing and management
Educational and Scientific Degree	PhD degree, level 8 under the National Qualifications Framework
Area	5. Technical sciences
Professional field	5.2 Electrical engineering, electronics and automation
Form of education	Full time / Part-time / Self-study / Under Art. 21, para. 7 of the Higher Education Act
Duration of study	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 doctoral program in "Automated Information Processing and Control Systems" aims to prepare highly qualified specialists in the fields of science, education, industry, and public administration, who can apply their knowledge and skills in various scientific and applied fields. The program is designed to develop research skills, critical thinking, and the ability to solve complex problems by creating simulation models, utilising innovative methods, techniques, and technologies (including 3D technologies).

Objectives of the doctoral program.

- Creation of highly qualified scientific, research and teaching staff with experience in experimental activities in the field of **Automated Information Processing and Control Systems**, who are given freedom of study and research, taking into account 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 in accordance with international quality standards in the training of doctoral students;
- Activation of the academic initiative and scientific potential of IICT for the implementation of projects and research arising from the new market needs and the challenges of the changing environment.

### CONTENT OF THE TRAINING

The PhD program in "Automated Systems for Information Processing and Management" has been developed in accordance with the requirements and provisions of the Higher Education Act, the Regulations on the Terms and Conditions 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 conducted according to an individual educational plan in accordance with the chosen topic of the dissertation. In the individual plan, according to the Program of the doctoral program,

the mandatory for the PhD student are noted in detail the general educational, language, IT and specialized courses, scientific research (literature research, empirical research), approbation of the results, forums, publication of dissertation (participation in doctoral and scientific forums, publications in reputable journals), etc. Doctoral students submit annually an annual attestation of the work done according to their individual plan and, if necessary, its update. The annual attestation of each PhD student is discussed and adopted at a meeting of the National Assembly of the Institute. 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 Automated Information Processing and Management Systems.
- ability to make comparative analyses and choose an appropriate solution from among alternative solutions;
- Ability to propose new concepts, principles, 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 scientific research in the field of Automated Information Processing and Control Systems;
- 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: use of specialized literature (including in a foreign language); systematization, generalization and analysis of existing statements; independent conduct of scientific and applied research; shaping and presenting the results in an understandable, logical, precise and correct way.

Dissertation topics are formulated based on real-world problems that address the needs of companies. PhD students are encouraged to focus their research activities in promising areas that meet the public expectations and needs of the country, which would also favor their own realization 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 dealing with increasing the efficiency of existing and innovative productions. The training provides knowledge and skills for solving complex scientific problems, for managing units related to the development and implementation of technologies in the field of Automated Information Processing and Management Systems, as well as for 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 Scientific Council of IICT-BAS approves the Qualification description on 26.3.2025 (Record № 3).*

Approved by:

corr. mem. Sv. Margenov