

# **Educational plan**

## **PhD program "Automated Information Processing and Control Systems"**

### **First year**

#### **1. Language Preparation Course**

#### **2. Computer Skills Course – Choice of [IT Courses](#)**

- [LaTeX Basics](#)
- [Data Analysis with R](#)
- [Presentation skills](#)
- [Photoshop](#)
- [GIMP](#)
- [MATLAB](#)
- [Statistical data analysis](#)
- [MS Excel](#)
- [Transfer of scientific knowledge to the public through the free electronic encyclopedia Wikipedia](#)

#### **3. Specialized courses – selection of at least 2 courses from [Specialized courses](#) at the Central Office of the Bulgarian Academy of Sciences**

- Design of Internet applications
- Contemporary reprogrammable devices
- Internet Technologies for system management

#### **4. Individual Research Plan 1**

- Formulation of a research topic
- Literature review and methodological preparation
- Initial results and analyses

#### **5. Seminar on the program**

- Presentation and discussion of current research and projects
- Critical analysis of scientific articles and reports

#### **6. General basic preparation according to the synopsis for an exam in a basic specialized subject**

- Preparation of a synopsis on the topic of the dissertation

- Synopsis exam: 2 written questions and 2 - 4 oral questions

## **Second year**

### **7. Individual Research Plan 2**

- Research and experiments
- Analysis and interpretation of results
- Planning the content and structure of a dissertation

### **8. Ethics and professional development**

- Scientific ethics and integrity
- Publication of scientific papers
- Participation in conferences and seminars
- Career development and academic opportunities

### **9. Program Seminar 2**

- Presentation and discussion of individual research projects
- Interdisciplinary discussions and collaboration

## **Third year (for PhD students part-time and self-study until the end of the doctoral period)**

### **10. Individual Research Plan 3**

- Finalizing research and experiments
- Analysis and interpretation of results
- Preparation of a dissertation

### **11. Publications and presentations**

- Preparation of scientific articles for publication
- Presentation of the results of international conferences

### **12. Presentation of the work done on the dissertation**

- Presentation of published results
- Further specification of the topic of the dissertation (no later than 3 months before the date of the meeting of the section for the preliminary discussion)

### **13. Final defense of the dissertation (up to 5 years after the expiration of the doctoral period)**

- Preparation and presentation of the dissertation to a scientific jury.

- Answers to questions and criticism from the members of the committee.

**This program provides PhD students with the necessary knowledge and skills to conduct independent research in the field of engineering sciences, IoT devices, modern technologies, creation of simulation models and optimization of processes and their successful application in various scientific and practical contexts.**