

## **Educational plan**

### **Doctoral Program "Communication Networks and Systems"**

**First year (1-2 semester)**

**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**

- Cloud technologies
- Combinatorial algorithms in coding theory
- Advanced sensor information processing
- Internet technologies for system management
- Introduction to the process of knowledge discovery
- Contemporary reprogrammable devices
- VHDL - Digital Design and Language

**4. Communication Networks and Systems Seminar 1**

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

**5. Individual Research Plan 1**

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

**6. General basic preparation according to the synopsis for the 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 (3-4 semester)**

**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. Communication Networks and Systems Seminar 2**

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

**Third year (5-6 semester) (for PhD students part-time and self-study until the end of the doctoral period)**

**9. Individual Research Plan 3**

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

**10. Publications and presentations**

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

**11. 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)

**12. Defense of the dissertation (up to 5 years after the expiration of the doctoral degree)**

- Preparation and presentation of the dissertation to a scientific jury
- Answers to questions and criticism from committee members

**This program equips PhD students with the necessary knowledge and skills to conduct independent research in the field of communication networks and systems, as well as their successful application in various scientific and practical contexts.**