

**QUALIFICATION CHARACTERISTICS
OF DOCTOR PROGRAM "COMPUTER SYSTEMS, COMPLEXES and NETWORKS"
FOR ACADEMIC QUALIFICATION LEVEL: DOCTOR of PHILOSOPHY**

I. Career opportunities

The curriculum of this doctor's program is designed for students graduated Magister degree. The doctor program "Computer Systems, Complexes and Networks" opens up a wide range of career opportunities in research institutes, high education, industry, including software engineering, systems designer, database administrator, management information consultant, project manager, enterprise architect and etc.

II. Requests and Training

Specialist has to have wide culture, communication skills, organization and businesslike, creativity abilities. Graduates of this program are prepared for working in one of the most promising technical areas related to the use and implementation of computer systems and information technology in all areas of scientific research, high education, business of the country - industry, government and private business, transport, banking communications, ecology, services and etc. At the same time he or she has to possess knowledge of natural and computer sciences as well as extensive theoretical and practical knowledge in computer systems and information technology.

He or she also has to have experimental and practical skills in this area, orientation in problem situations and the ability to solve them with unconventional means. These requests are based on fundamental and special training acquired during the training and specialized courses in the field of computer and information technologies that enhance the professional skills of specialists.

**STRUCTURE OF THE CURRICULUM
Field of Study: Communications and Computer Engineering
Degree: Doctor of Philosophy, Period of Study: 3 years (3 semesters)**

<i>Obligatory courses</i>	Semester	<i>Optionally courses</i>	Semester
1. Requirements and structure of doctoral thesis	1	1. Methodology in scientific creativity.	2
2. Mathematical modeling and numerical methods.	1	2. Scientific research automatization	2
3. Methods of experimental research.	1	3. Economy aspects of scientific investigations.	2
4. Methods and algorithms of optimization.	1	4. Intellectual property protection	2
5. Tendencies in computer development.	1		
	1		

Notes:

1. In the table is specified an exemplary number and duration of necessary lectures. Concrete courses and lecture duration must be specified in the Individual plan of doctorant.

2. Learning a foreign language is compulsory except in cases of demonstrated proficiency in same. At least two other mandatory elective courses each student must pass an examination. These disciplines are determined by the tutor.

Requirements and structure of doctor's work

Semester: 1 semester

Type of Course: Lectures

Hours per week: 2 hours lectures

Department: „Computer system and technology”

Course status: Obligatory

Objectives:

The content of course focuses on the following topics:

To acquaint doctorants with the structure and requirements of doctorant's dissertation.

To familiarize doctorants with literature analyzing and creating literature review.

To familiarize doctorants with describing the experimental and theoretical results.

Method of teaching: The lectures and Home work.

Pre-requirements: The knowledge doctorants have acquired so far is sufficient for the researches and studies.

Registration for the Exam: coordinated with the lecturer and the Doctorant Service Office

Mathematical modeling and numerical methods

Semester: 1 semester

Type of Course: Lectures

Hours per week : 2 hours lectures

Department: „Computer system and technology”

Course status: Obligatory

Objectives:

The content of course focuses on the following topics

To acquaint doctorants with the base concepts of mathematical modeling of different processes.

To familiarize doctorants with the numerical methods of solving mathematical problems.

To familiarize doctorants with using different software tools for mathematical operations.

Method of teaching: The lectures and Home work.

Pre-requirements: The knowledge doctorants have acquired so far is sufficient for the studies.

Registration for the Exam: coordinated with the lecturer and the Doctorant Service Office

Methods of experimental research

Semester: 1 semester

Type of Course: Lectures

Hours per week : 2 hours lectures

Department: „Computer system and technology”; „Mathematics” and „Informatics”

Course status: Obligatory

Objectives:

The content of course focuses on the following topics

To acquaint doctorants with the base methods of experimental investigations.

To familiarize doctorants with the methods and tools for process of experimental data.

Method of teaching: The lectures and Home work.

Pre-requirements: The knowledge doctorants have acquired so far is sufficient for the studies.

Registration for the Exam: coordinated with the lecturer and the Doctorant Service Office

Methods and algorithms of optimization.

Semester: 1 semester

Type of Course: Lectures

Hours per week : 2 hours lectures

Department: „Computer system and technology”; „Mathematics” and „Informatics”

Course status: Obligatory

Objectives:

The content of course focuses on the following topics

To acquaint doctorants with the base methods of defining and solving the optimization models and procedures.

To familiarize doctorants with the algorithms and software tools for mathematical optimization .

Method of teaching: The lectures and Home work.

Pre-requirements: The knowledge doctorants have acquired so far is sufficient for the studies.

Registration for the Exam: coordinated with the lecturer and the Doctorant Service Office

Tendencies in computer development

Semester: 1 semester

Type of Course: Lectures

Hours per week : 2 hours lectures

Department: „Computer system and technology”; „Mathematics” and „Informatics”

Course status: Obligatory

Objectives:

The content of course focuses on the following topics

To acquaint doctorants with the main tendencies of computer development

To familiarize doctorants with the new computer technologies.

Method of teaching: The lectures and Home work.

Pre-requirements: The knowledge doctorants have acquired so far is sufficient for the studies.

Registration for the Exam: coordinated with the lecturer and the Doctorant Service Office