



## **COURSE: *Digital Information Systems***

**LECTURER:** Kateryna Osypenko, Ph.D.

**LANGUAGES OF EDUCATION:** Ukrainian, Russian, English

**THE SUBJECT:** students are acquiring theoretical knowledge and the development methods of digital systems of information processing, transmission, and storage.

**THE AIM** of the course includes the formation of the following students' **abilities:**

- ❖ Ability to synthesis and implement combinational devices based on a programmable logic integrated circuit (FPGAs); Mealy and Moore synchronous and asynchronous automates;
- ❖ Ability to build graph-schemes of algorithms implementation logic and arithmetic operations of automatic firmware based on rigid circuit and programmable logic;
- ❖ Ability to build an information system using FPGA.

### **THE MAIN TASK OF THE EDUCATIONAL COURSE**

To give students a thorough knowledge of the theory and practice of digital information systems construction. The important class of digital information systems - Mealy and Moore synchronous and asynchronous automates, synthesis and analysis of their structures and the use of permanent storage devices, and programmable logic integrated circuits for building digital information systems are considered.

#### **Knowledge:**

- ✓ the representation theory and minimization of digital devices
- ✓ synthesis and analysis technique for Mealy and Moore synchronous and asynchronous automates using modern integrated components

#### **Skills:**

- ✓ ability to use theoretical knowledge for the development of various digital information systems structures of noise-immune type, conduct a test and functional control

#### **Experience:**

- ✓ to apply gained knowledge in carrying out term papers and final work in practice and research in the specialty

**COURSE DURATION:** 6 credits, 180 hours in total, 56 hours of lectures, 36 hours of practice, 10 hours of calculation and graphical work, 90 hours for own student's work.

**REQUIREMENTS TO STUDENTS:** knowledge in the field of computer science, information theory and signal processing, digital electronics devices.

