ITMO University

Programming of Microcomputer-Based and Distributed Control Systems

Course Workload		Assessment form (examination/ graded test/ ungraded test)
ECTS	Hours	
3	108	Graded test

During this course, students become familiar with the fundamental approaches to programming microprocessor and distributed control systems. They explore the object-oriented approach using the C++ language and the Qt framework.

Course structure:

1. Distributed microprocessor systems and devices

1.1. The concepts of a distributed microcomputer system and a microcomputer device
1.2. Classification, features of physical devices and software implementations
1.3. Special and general purpose operating systems, devices without operating systems
1.4. POSIX systems

2. Development of software for microprocessor devices

2.1. Basic programming languages for microcomputer devices
2.2. Features of project organization, basic concepts of effective use of programming patterns
2.3. Assembling and translating projects, the main stages of creating an executable file, cross-compilation
2.4. Program implementation for a communication with external interfaces of microcomputers

3. Communication protocols in distributed microprocessor systems

3.1. Data packets, basic concepts of packet structure formation, start bytes, checksums
3.2. Transmitting, receiving and data packets processing, handling of transmission and reception errors
3.3. Client-server interaction, command distribution center in the system