Go language - programming I

Course code: GO_INTRO

The course is intended for beginners who want to learn the basics of the modern, fast and highly efficient GO language. In this course you will learn the basic features of the language, the use of functions, data structures and other things in the GO language. If you have no experience with programming, we recommend that you first complete the course Introduction to Algorithmization and Programming [PRG]

For whom the course is intended:
- For beginning developers who want to learn to program in the GO language.

Required initial knowledge
- Basic knowledge of algorithmization and programming at the level of the PRG course, or experience with programming in another language

Teaching methods
- Expert interpretation with practical examples, exercises on computers.

Study materials
- Presentation of the subject matter in printed or online form.

Syllabus
Introduction
- History and basic features of the GO language
- Code writing conventions, syntax basics
- Static typing
- Memory management
- Parallel processing
- Installation
- Development environment
- Program "Hello world"

Data types and variables
- Numeric data types
- Arithmetic operators
- Boolean
- Strings and working with them
- Variables
- Conversion
- Fields, sections and maps

Program run control
- If and switch command
- Forum cycles

Functions
- Definition of functions and procedures
- Passing parameters
- Variable number of parameters
- Multiple return values
- Range of validity of variables
- Defer command
- Functions as variables
- Callbacks and closures

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Program debugging (debugging)
- Program debugging
- Principle of error processing in GO
- Panic and recovering mechanism

User-defined types, object principles
- Briefly about indicators
- Structures
- Methods
- Interfaces

Parallel processing, goroutines
- Processes, threads
- Goroutines
- Communication, synchronization using channels