



GO (GOLANG)

Syntax . Structs . Interfaces
Goroutines . Channels .
HTTP Services . Testing . Deployment

DURATION	LEVEL	MODULES	MODE
40 Hours	Intermediate	8	Classroom · Online · Hybrid

01 COURSE OVERVIEW

A Go course covering the language, its concurrency model and building production services. Go is taught the way it is written in practice: small interfaces, explicit error handling, composition over inheritance, and concurrency with goroutines, channels and context. The second half builds an HTTP service with tests and a container image.

Learners deliver a deployed Go service with structured logging and graceful shutdown.

WHO IT IS FOR

Backend developers

DevOps and platform engineers

Developers moving from Python or Java

Engineers building CLI tools and services

PREREQUISITES

Experience in at least one programming language.

02 LEARNING OUTCOMES

01 Write idiomatic Go with explicit error handling.

03 Use goroutines, channels and select correctly.

05 Build HTTP services and middleware.

07 Build, containerise and deploy a Go binary.

02 Model data with structs and small interfaces.

04 Control cancellation and timeouts with context.

06 Test with the standard library and table tests.

03 MODULE STRUCTURE

8 MODULES

01 GO BASICS

Types and variables

Functions

Slices and maps

Control flow

Multiple returns

Strings and runes

LAB

GO EXERCISES

02 STRUCTS AND METHODS

Structs

Composition

Constructors

Methods and receivers

Embedding

Struct tags

03 INTERFACES AND ERRORS

Interface design

errors.Is and As

Sentinel errors

Type assertions

Wrapping

panic and recover

04 CONCURRENCY

Goroutines

Buffered channels

WaitGroup and Mutex

Channels

select

Race detector

LAB

WORKER POOL

05 CONTEXT AND TIMEOUTS

Context tree

Deadlines

HTTP client timeouts

Cancellation

Passing values

Graceful shutdown

06 HTTP SERVICES

net/http

Middleware

Validation

Structured logging

Routing

JSON handling

Configuration

LAB

REST SERVICE

07 DATA AND TESTING

database/sql

Repository pattern

httptest

Coverage

Migrations

Table-driven tests

Benchmarks

08 BUILD AND DEPLOY

Modules

Dockerfile for Go

Metrics

Cross-compilation

Health checks

CI pipeline

PROJECT

DEPLOYED GO SERVICE

04 ASSESSMENT & CERTIFICATION

Module assignments and labs	25%
Mini projects	20%
Internal assessments	15%
Final project and review	40%

CERTIFICATION

Learners who complete all modules, submit the final project and clear the review receive a course completion certificate from Kaizen Infinities Private Limited. Project work is documented for the learner's portfolio, and interview preparation is included in the closing sessions.

05 CAREER OUTCOMES

ROLES THIS PROGRAMME PREPARES FOR

GO DEVELOPER

BACKEND ENGINEER

PLATFORM ENGINEER

DEVOPS ENGINEER

CLOUD SERVICES DEVELOPER

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