Course code: JDESIGN

The course will deepen participants' knowledge of advanced web application development techniques in Java. We will first look at the "good old" GoF (Gang of Four) design patterns and which are still relevant today and which are not. Next we will look at the basic architecture of each application in terms of design patterns. We continue with multi-threaded and even-driven programming, and even if you don't work with threads directly, you'll find that you still need to know a lot of things about them. We also have to work with the database, there will be some surprises, especially when working with transactions. Finally, let's look at the presentation layer.

Affiliate	Duration	Course price	ITB
Praha	3	27 900 Kč	30
Brno	3	27 900 Kč	30
Bratislava	3	1 260 €	30

The prices are without VAT.

Course terms

	Date	Duration	Course price	Type	Course language	Location
	04.05.2026	3	27 900 Kč	Presence	CZ/SK	GOPAS Praha
📐	04.05.2026	3	1 260 €	Telepresence	CZ/SK	GOPAS Bratislava

The prices are without VAT.

Required input knowledge
- The course assumes knowledge and experience with programming in Java at the level of the JAVAPROG2 and JAVASPRING courses

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

Studying materials
- Printed presentations of the subject matter.

Course syllabus
GoF design patterns
- Singleton (anti) pattern
- Builder
- Factory method
- Strategy
- Proxy
- Facade
- and more

Basic application architecture
- Package / modular project structure
- Microservices, Modular monolith
- Three-tier architecture
- Inversion of Control (IoC) &Dependency Injection
- Aspect Oriented Programming (AOP)
- Java Bean, POJO, Value Object (VO), Data Transfer Object (DTO)
- Lazy initialization

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- Functional Programming

Multi-threaded programming &Event-driven programming
- Immutable objects
- Thread safety
- Pool objects
- Callback, Future, Promise, Reactive programming
- Observer, EventBus, RxJava, Project Reactor
- Event Loop

Working with the database
- Entity &DTO
- Transactions
- join fetch, Entity Graph
- Request / Response mapper (MapStruct)
- JPA, Spring Data JPA
- Open In View (anti) pattern
- JNDI

Presentation layer
- Front Controller
- REST
- HATEOAS &HAL
- GraphQL
- OpenAPI (Swagger)