

Integration in practice

Course code: GOC4612

Today's IT world cannot do without connecting systems, but poorly designed integration can do more harm than good. This training will provide you with more than just a basic insight into the world of application integration and equip you with the skills necessary for its **logical design**. We will show you that integration is not just about connecting "wires", but about a deeper understanding of data, processes and overall architecture. During the training, you will try out many topics in practical exercises so that you can immediately apply your new knowledge in real situations.

Who is the course intended for - **IT and business analysts** who need to understand how systems exchange data and want to participate confidently in the design of these interfaces. - **Application and solution architects** who are looking for best practices for designing robust and sustainable integration solutions. - **Note:** The training is **not** primarily intended for developers and programmers who already have extensive experience with integrations and are looking for purely technological details about a specific implementation in code.

What we will teach you - Understand the concept of integration and its key role in modern architecture. - Get familiar with various integration methods and technologies. - Acquire the ability to design logical integration between applications and systems. - Identify and solve the basic challenges of security aspects of integration.

Required entry knowledge - Awareness of the application [Postman](https://www.postman.com/). - Analytical and slightly technical thinking. - Previous knowledge of integration is not necessary.

Teaching methods - Professional explanation with practical examples and exercises on computers.

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

Course syllabus - **Introduction to systems integration** - What is integration and why is it important? - Examples of integration in everyday life and business. - History and development of integration in IT. - **Basics of working with data** - Data formats and their role in integration (XML, JSON). - Data transformation and mapping (ETL). - Data validation and cleansing. - **Methods and approaches** - Direct connection of systems (Point-to-Point (P2P) integration). - Message-Oriented Middleware (MOM) integration. - Service-Oriented Architecture (SOA) and web services. - Representational State Transfer (REST) and RESTful API. - Event-Driven Integration. - Cloud Integration and iPaaS (Integration Platform as a Service). - Business logic in integration solutions. - **Architecture and interface design** - Identification of integration needs and requirements. - Design of the overall integration architecture. - Integration patterns. - Selection of appropriate technologies and tools. - Interface documentation (Swagger/OpenAPI) - Message and data model processing. - Integration design modeling (ArchiMate/UML/BPMN). - **Security** - Data security during transmission. - Authentication and authorization. - Protection against attacks and misuse. - **Challenges and trends** - Internet of Things (IoT) and its impact on data exchange. - Artificial intelligence and machine learning in the context of integration. - Automation and integration management tools. - **Practical examples** - Examples of using different integration methods. - Examples of data formats and transformations.

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