

KOENIG SOLUTIONS · COURSE OUTLINE

Angular App Development with Module Federation

Learn to build, test and deploy Angular applications using components, services, routing, NgRx and Module Federation for micro-frontends.

5 Days

DURATION

10

MODULES

43

TOPICS

COURSE OVERVIEW

This course covers Angular fundamentals including components, templates and directives, followed by component communication, data binding and services with dependency injection. It then addresses routing, lazy loading, route guards and both template-driven and reactive forms. Advanced topics include state management with NgRx and micro-frontend architecture using Webpack 5 Module Federation, covering module exposure, dependency sharing and dynamic remote loading. The course concludes with unit testing, performance optimisation, and deployment of Angular applications and micro-frontends to platforms such as Firebase, Netlify or Vercel.

WHO THIS COURSE IS FOR

Angular Developers

Front-End Developers

Web Application Developers

Software Engineers

Micro-Frontend Architects

PREREQUISITES

Prerequisites Topics (Self-study / Pre-training Session)

- HTML & CSS (2-3 Hours): Semantic HTML, Forms and Input elements, CSS basics (Selectors, Flexbox, Grid), Responsive design basics
- JavaScript Essentials (4-5 Hours): Variables (let, const, var), Functions and Arrow Functions, ES6+ features (Destructuring, Spread, Rest), Promises and Async/Await, DOM Manipulation and Event Handling
- TypeScript Basics (4-5 Hours): Installing and setting up TypeScript, Variables and Data Types, Functions, Interfaces, Classes, Inheritance, Modules, Imports, Generics, Decorators

What You Will Learn

- Explain Angular's architecture, modules, components and directives
- Apply data binding techniques and component communication patterns
- Implement services and dependency injection for API calls
- Configure routing, lazy loading and route guards
- Build template-driven and reactive forms with validation
- Apply NgRx for state management using actions and reducers
- Implement Module Federation to share and consume remote modules
- Deploy Angular applications and micro-frontends to hosting platforms

COURSE SYLLABUS

10 Modules, 43 Topics

DAY 1 Introduction to Angular & Environment Setup

01

Morning Session

TOPICS

- What is Angular and its evolution (AngularJS to Angular 19)
- Advantages and real-world applications
- Installing Node.js & Angular CLI
- Creating and running the first Angular app
- Project structure overview

CORE CONCEPTS:

- Modules (NgModule)
- Components (@Component)
- Templates and Views
- Directives (*ngIf, *ngFor, [ngClass], [ngStyle])

02

Afternoon Labs

TOPICS

- **Lab 1:** Set up Angular project & explore structure
- **Lab 2:** Create components & use directives (*ngIf, *ngFor, ngClass, ngStyle)

03

Morning Session

TOPICS

- Component Communication (@Input, @Output, Parent-Child)
- **Data Binding:** Interpolation, One-way & Two-way (ngModel), Property and Event Binding
- Angular Services & Dependency Injection (@Injectable)
- HttpClientModule for API calls

04

Afternoon Labs

TOPICS

Lab 3: Parent-Child Component Communication · **Lab 4:** Creating Services & making API calls

05

Morning Session

TOPICS

- Routing & Navigation with RouterModule
- Lazy Loading and Route Guards
- Handling Route Parameters
- **Forms in Angular:** Template-Driven vs Reactive (Validators, FormGroup, FormControl)

06

Afternoon Labs

TOPICS

Lab 5: Implement Routing and Route Guards · **Lab 6:** Build Reactive Forms with Validation

07

Morning Session

STATE MANAGEMENT WITH NGRX (REDUX PATTERN)

- Introduction to NgRx Store
- Actions, Reducers, Selectors, Effects

MICRO-FRONTEND ARCHITECTURE AND MODULE FEDERATION (NEW)

- Understanding Micro-Frontends and why they matter
- Overview of Webpack 5 Module Federation concept
- Setting up Module Federation in Angular 19 project
- Exposing and consuming modules between multiple Angular apps
- Sharing dependencies and managing version conflicts
- Dynamic Remote Loading and runtime configuration
- Communication between remote modules and host application
- Use cases and best practices for enterprise applications

08

Afternoon Labs

TOPICS

- **Lab 7:** State Management with NgRx - Set up NgRx store and manage state with actions and reducers
- **Lab 8:** Implementing Module Federation in Angular (New) - Create a host and remote Angular application, Expose components from remote and consume them in host, Demonstrate dynamic loading of modules at runtime, Verify independent deployment of each micro-frontend

09

Morning Session

TOPICS

- Unit Testing with Jasmine & Karma (components, services, directives)
- Performance Optimization (Lazy Loading, Change Detection, Production Best Practices)

DEPLOYMENT OF ANGULAR APPS

- Building & optimizing production version
- Hosting on Firebase, Netlify, or Vercel

DEPLOYING MICRO-FRONTEND APPLICATIONS WITH MODULE FEDERATION (NEW)

- Build and deploy independent Angular apps on Firebase/Netlify
- Environment-specific remote configurations

10

Afternoon Labs

TOPICS

- **Lab 9:** Write Unit Tests for Components and Services
- **Lab 10:** Deploy Angular App with Module Federation Support

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

FLEXIBLE DELIVERY

Learn the Way That Suits You

Classroom Training

Live Online Classes (ILO)

Fly-Me-A-Trainer (FMAT)

Flexi (Self-Paced)

1-on-1 Training

Ready to Get Started?

Talk to a learning advisor about schedules, group training and customised delivery.

Visit koenig-solutions.com

✉ info@koenig-solutions.com