

Angular 17 Training Syllabus

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Duration: 4-6 weeks (customizable based on pace)

Tools Required: Node.js, Angular CLI, VS Code, Git, Chrome

Module 1: Introduction & Setup

- What is Angular and Why Use It?
- Features of Angular 17
- Angular vs Other Frameworks (React, Vue)
- Installing Node.js and Angular CLI
- Creating First Angular App
- Angular Project Structure Overview
- Running and Serving Angular App
- Understanding package.json and dependencies

Module 2: TypeScript Essentials

- What is TypeScript and Why Use It in Angular?
- Data Types, Interfaces, and Enums
- Classes and Objects
- Arrow Functions and Destructuring
- Modules and Imports
- TypeScript in Angular Context

Module 3: Angular Architecture Overview

- Angular Modules (NgModule)
- Components

- Templates and Views
- Services and Dependency Injection
- Angular Lifecycle Hooks

Module 4: Components & Data Binding

- Creating and Using Components
- Component Decorator (@Component)
- Property & Event Binding
- One-way vs Two-way Binding
- ngModel for Forms
- @Input() and @Output()
- Component Communication Techniques

Module 5: Directives and Pipes

- Structural Directives: *ngIf, *ngFor, ngSwitch
- Attribute Directives: ngClass, ngStyle
- Custom Directives (basic)
- Pipes and Custom Pipes

Module 6: Routing and Navigation

- Setting Up Angular Routing
- Route Parameters
- Navigating with RouterLink and navigate()
- Child Routes
- Lazy Loading of Modules
- Route Guards (AuthGuard etc.)

Module 7: Forms in Angular

- Template-Driven Forms
 - Form Validation
 - Form Submission
- Reactive Forms
 - FormBuilder and FormGroup
 - Validation using FormControl
 - Async Validators
- Custom Form Controls

Module 8: Services & Dependency Injection

- Creating and Injecting Services
- Singleton Services
- Hierarchical Injector
- HttpClient Service (Basics)
- Calling REST APIs using HttpClient
- Observables and RxJS Basics

Module 9: Advanced Angular Concepts

- Angular Lifecycle in Detail
- ViewChild and ContentChild
- Subject vs BehaviorSubject
- Change Detection Strategy
- Zones in Angular
- Interceptors
- Error Handling in Angular
- Debounce with RxJS

- Angular Signals (New in v17)

Module 10: Angular with APIs (Full Integration)

- Consuming RESTful APIs (GET, POST, PUT, DELETE)
- Working with JSON Data
- Error Handling and Response Mapping
- Using Environments for Base URLs

Module 11: State Management

- Introduction to State Management
- Using Services for Local State
- Introduction to NgRx (optional)
- Signals and SignalStore (new reactive APIs)

Module 12: Angular Material (UI Framework)

- Installing Angular Material
- Common Components: Toolbar, Card, Dialog, Table
- Theme Customization
- Responsive Design with Material Grid

Module 13: Build, Deploy, and Optimization

- Angular Build Configuration
- Ahead-of-Time Compilation (AOT)
- Production Build & Deployment
- Hosting Angular App on Firebase / Netlify / GitHub Pages
- Introduction to SSR (Server-Side Rendering)

Module 14: Mini Projects & Hands-On

- CRUD Application (with API)
- ToDo List with Forms
- User Authentication UI
- Admin Dashboard with Angular Material
- Optional: Integrate with .NET or Node.js API

Module 15: Testing (Optional for Beginners)

- Unit Testing Components and Services
- Jasmine and Karma Basics
- End-to-End Testing with Protractor or Cypress

Final Evaluation

- Mini Project Submission
- Viva/Discussion on Concepts
- Q&A + Debugging Tasks