

**Introduction to Angular**

**Course Number:** ANG-170
**Duration:** 3 days

**Overview**

[Angular](https://angular.io/) allows developers to easily build dynamic, responsive single-page web applications that dynamically rewrite portions of the current page rather than having to generate a new page in response to every request. Accelebrate's Introduction to Angular training teaches attendees how to build applications using ES6, TypeScript, and modern front-end tools, including npm and Webpack.

**Note:** This course is taught in the current version of Angular at the time of teaching.

**Prerequisites**

Students must have object-oriented programming experience. Some experience with JavaScript is helpful; the new language features of JavaScript and TypeScript are covered/reviewed in class.

**Materials**

All Angular training attendees receive comprehensive courseware.

**Software Needed on Each Student PC**

* Google Chrome
* Other modern browsers as desired
* IDE/development environment of your choice
* Other free software and lab files that Accelebrate would specify

**Objectives**

* Understand how single-page web application architectures are different than traditional web application architectures
* Use new JavaScript (ES6) language features including Classes, Modules, and Arrow Functions
* Use new TypeScript language features including Types, Decorators, Interfaces, and Generics
* Learn Angular coding and architecture best practices including project layout and using container and presentation components
* Understand and use Angular model-driven forms, observables, dependency injection, and routing
* Communicate with a backend server using Angular’s HttpClient to load and save data
* Configure the router and navigate between components

**Outline**

* Introduction
* TypeScript and ECMAScript 6 (ES6) Fundamentals
	+ TypeScript Installation, Configuration & Compilation
	+ Type Annotations
	+ Classes
	+ Scoping using let, var, and const Keywords
	+ Arrow Functions
	+ ES Modules
	+ Decorators
	+ Template Literals
	+ Spread Syntax and Rest Parameters
	+ Destructuring
* Angular Overview
	+ Benefits of Building using Angular
	+ Understanding Angular Versions
	+ Single-page Web Application Architectures vs. Traditional Server-side Web Application Architectures
	+ Angular Style Guide
	+ Angular Architecture
	+ Angular Compared to Other JavaScript Libraries and Frameworks (React, VueJS, etc…)
	+ Your First Angular Application
* Components
	+ Understanding Components
	+ Component Properties & Methods
	+ Templates: Inline, Multi-line, and External with Component-relative Paths
* Angular Modules (NgModule)
	+ Angular Modules vs. ES Modules
	+ Organizing your code into Feature Modules
* Project Set-Up (Using the Angular CLI)
	+ Angular CLI Features
	+ Creating a New Project (with new CLI Prompts)
	+ Generating Code
	+ Customizing the Angular CLI
* Data Binding
	+ Interpolation
	+ Property binding
	+ Event binding
	+ Two-way data binding
* Directives
	+ Structural: ngFor, ngIf, ngSwitch
	+ Attribute: ngClass, ngStyle
* Pipes
	+ Built-in Pipes: Using, Passing Parameters, Chaining
* Advanced Components
	+ Component Communication using @Input, @Output
	+ Component Architecture
	+ Component Styles
	+ Component Lifecycle Hooks
	+ Evaluating UI Component Frameworks & Libraries
* Services & Dependency Injection
	+ Using a service to access data
	+ Using a service to encapsulate business logic
	+ Understanding the scope of services
* Dependency Injection
	+ Understanding Dependency Injection
	+ Angular’s Dependency Injection System
	+ Registering
	+ Injecting
* Model-driven Forms (Reactive Forms)
	+ Importing the ReactiveFormsModule
	+ FormControl, FormGroup, and AbstractControl
	+ Binding DOM Elements to FormGroups and FormControls
	+ Validation Rules, Messages, and Styles
	+ Refactoring Reactive Forms for Reuse
	+ Custom Validators
* Communicating with the Server using the HttpClient Service
	+ Deciding between Promises or Observables (RxJS)
	+ Making an HTTP GET Request
	+ Sending data to the server using Http POST and PUT Requests
	+ Issuing an HTTP DELETE Request
	+ Intercepting Requests and Responses
* Router
	+ Importing the RouterModule
	+ Configuring Routes
	+ Displaying Components using a RouterOutlet
	+ Navigating declaratively with RouterLink
	+ Navigating with code using the Router
	+ Accessing parameters using ActivatedRoute
* Deploying an Angular Application to Production
	+ Building an application using the Angular CLI
	+ Differential loading: creating a modern build (ES2015) and a legacy build (ES5)
	+ Deploying to a web server
* Upgrading to the latest version of Angular from earlier versions
	+ 2.x and above
	+ Update Guide
	+ Deprecation Guide
	+ Patching Dependencies: npm audit fix
	+ Looking for AngularJS to Angular upgrades? See our
* Roadmap to the future Angular
	+ Getting Started with Standalone Components
	+ Understanding Signals
	+ Built-in control flow
	+ Angular Beta Documentation (Angular.dev)
* Conclusion