

KOENIG SOLUTIONS · COURSE OUTLINE

Advanced TypeScript

Learn to apply advanced TypeScript features, functional programming and modern ECMAScript to structure and test scalable projects.

9

MODULES

38

TOPICS

COURSE OVERVIEW

This course reviews core TypeScript concepts before covering how to introduce TypeScript into existing JavaScript files and apply it consistently. It then examines advanced TypeScript features such as type guards, utility types, conditional types and mapped types, alongside recent and upcoming ECMAScript features. Further modules address functional programming principles, mixins, generics, function and type overloading, modules and namespaces, and dependency injection. The course concludes with project structuring practices including architectural conventions, module refactoring, compilation and automated testing.

WHO THIS COURSE IS FOR

JavaScript Developers

TypeScript Developers

Front-End Developers

Software Architects

Test Engineers

LEARNING OBJECTIVES

- Explain the benefits of adopting TypeScript in JavaScript projects
- Apply TypeScript incrementally within existing JavaScript files
- Identify appropriate uses for the any type and its relatives
- Apply type guards, utility types and mapped types
- Assess conditional type assignment and index-derived types
- Describe functional programming principles such as pure functions
- Compare functional helpers from libraries such as lodash and RxJS
- Plan project structure using architectural conventions and testing

9 Modules, 38 Topics

01

Quick Review of TypeScript

TOPICS

- Why Typescript is such a stonkingly good idea
- Remember, Typescript is (currently) design-time only

02

How to Get There from Here

TOPICS

- Adding TypeScript to existing JS files
- Use as little or as much TypeScript as you like
- **Towards an agreed code style:** using TypeScript consistently
- Get out of jail free with `<any>` type and its relatives (and when not to use them)

03

Advanced TypeScript

TOPICS

- Checking against permitted members with Type Guards
- Partial, ReturnType, Required and other Utility types
- Assigning Type based on conditions
- Deriving Types from collection index members
- New types for old with maps types

04

Leading-Edge ECMAScript

TOPICS

- **Keeping up with the code-ashians:** ECMAScript just keeps getting better every year
- What's new since ES6:
- ...and you are making use of back ticks and interpolation, aren't you?
- So how do we do it this week?
- Who's driving the ECMAScript agenda (and how you can have your say)
- What's coming

05

Functional Programming

TOPICS

- Why pure functions turn out to be a good idea
- Scalable encapsulation, testability and stateful apps
- What that means for coding style

06

Mixins, Generics and Testing

TOPICS

- Are we there yet? What the RxJS library is teaching ECMAScript
- Exploring functional helpers and the underlying thinking
- Popular helpers from lodash
- Benefits when it comes time to test

07

Function Overloading and Type Overloading

TOPICS

- Can we fix it? Yes we can
- Can we fix it? Yes we can and so can my wife
- These types are really cool ... and flexible!
- Modules and Namespaces
- Import, Export (and not a trade deal in sight)
- Dependency injection, inversion of dependency and all that jazz
- These aren't just old components, they're namespaced components

08

Project Structuring

TOPICS

- Towards architectural conventions
- Automated tree-shaking, dehydration and module refactoring (oh my!)
- When you say compile, you really mean...
- The wonderful world of automated testing

09

ES2020 and Beyond

TOPICS

- So how do we do it this week?
- Who's driving the ECMAScript agenda (and how you can have your say)
- What's coming next

WHAT IS INCLUDED

Everything You Need to Succeed

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

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