

KOENIG SOLUTIONS • COURSE OUTLINE

.NET Foundations (4012)

Learn core .NET concepts and Class Library features, from packages and reflection to I/O, delegates and threading.

2 Days

16 HOURS

8

MODULES

39

TOPICS

COURSE OVERVIEW

This foundational two-day course is designed to provide a sound introduction to .NET for programmers who already know the C# language. It is current to Visual Studio 2022 and .NET 7.0. The course focuses on core portions of the .NET Class Library that are common across many application areas. It starts with an introduction to the architecture and key concepts of .NET. The course then discusses class libraries, packages, metapackages and frameworks. The following chapters discuss important topics in the .NET programming model, including metadata and reflection, I/O and serialization, delegates and events, memory management, processes and threads. The course concludes with a chapter on threading, which includes an introduction to the Task Parallel Library (TPL). The course is hands-on, with many programming examples. The goal is to equip you with the foundations of this important new technology from Microsoft. The student will receive a comprehensive set of materials, including course notes and all the programming examples.

WHO THIS COURSE IS FOR

C# Developers

.NET Developers

Software Developers

Application Developers

PREREQUISITES

Required Prerequisites

- The student should be an experienced application developer or architect with a working knowledge of C#.

TOOLS AND REQUIREMENTS

System Requirements

- Course examples require Microsoft Visual Studio 2022 version 17.4 or later and Windows 10 or higher. The free Visual Studio Community 2022 can be used. See the appropriate course Setup Guide for details.
- A good minimal hardware profile for this course consists of a 2 GHz or better CPU, 4 GB of RAM and at least 10 GB of free disk space for tools installation and courseware.

What You Will Learn

Benefits

- Gain a thorough understanding of the philosophy and architecture of .NET Core
- Understand packages, metapackages and frameworks
- Acquire a working knowledge of the .NET programming model
- Implement multi-threading effectively in .NET applications

COURSE SYLLABUS

8 Modules, 39 Topics

01

.NET Fundamentals

TOPICS

- What is Microsoft .NET?
- Common Language Runtime
- Framework Class Library
- Language Interoperability
- Managed Code
- .NET Core, .NET 7, and Cross-Platform Development

02

Class Libraries

TOPICS

Components in .NET · Class Libraries Using Visual Studio · Using References

03

Frameworks and Packages

TOPICS

- .NET Implementations and Frameworks
- .NET Standard
- NuGet Packages and Gallery
- Metapackages and Frameworks
- Packages in .NET 7
- Porting from Classical .NET to .NET 7
- Visual Studio Package Manager
- Installing Packages
- Creating Packages

04

Metadata and Reflection

TOPICS

Metadata · Reflection · Late Binding

05

I/O and Serialization

TOPICS

Directories · Files and Streams · XML Serialization

06

Delegates and Events

TOPICS

Delegates · Random Number Generation · Anonymous Methods · Lambda Expressions · Events

07

.NET Programming Model

TOPICS

Garbage Collection · Finalize and Dispose · Processes · Command-Line Arguments · Threads

08

.NET Threading

TOPICS

Threading Fundamentals · ThreadPool · Foreground and Background Threads · Synchronization · Task Parallel Library

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

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