

# Course : C# 13 and Visual Studio 2022, implementing the new features

**Practical course - 5d - 35h00 - Ref. CVS**

**Price : 2610 € E.T.**

 4,7 / 5

This course focuses on programming .NET applications in C#. Participants will learn what's new in the language and in the Visual Studio IDE. They will learn how to implement REST services, Entity Framework for data management and the WPF framework for high-performance, modern GUIs.

## **Teaching objectives**

**At the end of the training, the participant will be able to:**

- ✓ Learn about C# 12 evolutions
- ✓ Implementing Api Web services with ASP.NET Core
- ✓ Managing CRUD operations with Entity Framework
- ✓ Developing GUIs using WPF
- ✓ Deploying Api Web applications to Docker

## **Intended audience**

This course is designed for both project managers and developers who want to master C# and Visual Studio.

## **Prerequisites**

Knowledge of C# 9.0 or very good knowledge of Java or C++. Good knowledge of Object Oriented Programming.

## **Course schedule**

### **PARTICIPANTS**

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### **PREREQUISITES**

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### **TRAINER QUALIFICATIONS**

The experts leading the training are specialists in the covered subjects. They have been approved by our instructional teams for both their professional knowledge and their teaching ability, for each course they teach. They have at least five to ten years of experience in their field and hold (or have held) decision-making positions in companies.

### **ASSESSMENT TERMS**

The trainer evaluates each participant's academic progress throughout the training using multiple choice, scenarios, hands-on work and more.

Participants also complete a placement test before and after the course to measure the skills they've developed.

## 1 C# language developments: V3 to V12

- C#3.0: extension methods, lambda expressions and LINQ.
- C#4.0: dynamic interoperability and parallelism.
- C#5.0: asynchronous programming with await/async and Tasks.
- C#6.0: main evolutions and Roslyn compiler "open".
- C#7.0: local functions, tuples, pattern matching.
- C#8.0: nullable reference types to avoid NullReferenceException, index and ranges for arrays.
- C#9.0: record types, non-destructive mutation.
- C#11.0: range expressions, "init" method calls, "record" data types, improved interpolation models.
- C# 12: main constructors, collection expressions.
- Visual Studio workshop.

### Hands-on work

Analysis of a C#12 application. Various examples illustrating the evolution of C#.

## 2 REST architecture with ASP.NET Core

- Representational State Transfer.
- Associate controllers and actions with HTTP URLs and methods.
- CRUD lifecycle management and HTTP status codes.
- Service security.

### Hands-on work

Creation of a Web API.

## 3 .Net MAUI and .Net Standard

- .Net Core for .Net on Mac and Linux.
- .Net Standard for libraries targeting different platforms.

### Hands-on work

Creation of a standard .Net library.

## 4 Data access with Entity Framework Core

- Introduction to Entity Framework Core.
- Create a database model in C#.
- Database operation with LINQ.
- Model customization via associations, projections and inheritance.
- CRUD entity life cycle.
- Migration and reverse engineering.

### Hands-on work

Creation of CRUD operations. Optimistic transactions.

## 5 GUI development via WPF

- WPF application architecture, XAML reminder.
- Main container controls.
- Resources, styles, transformations, animations.
- DataBinding infrastructure.

### Hands-on work

Creation of a WPF internship management application.

## TEACHING AIDS AND TECHNICAL RESOURCES

- The main teaching aids and instructional methods used in the training are audiovisual aids, documentation and course material, hands-on application exercises and corrected exercises for practical training courses, case studies and coverage of real cases for training seminars.
- At the end of each course or seminar, ORSYS provides participants with a course evaluation questionnaire that is analysed by our instructional teams.
- A check-in sheet for each half-day of attendance is provided at the end of the training, along with a course completion certificate if the trainee attended the entire session.

## TERMS AND DEADLINES

Registration must be completed 24 hours before the start of the training.

## ACCESSIBILITY FOR PEOPLE WITH DISABILITIES

Do you need special accessibility accommodations? Contact Mrs. Fosse, Disability Manager, at [psh-accueil@orsys.fr](mailto:psh-accueil@orsys.fr) to review your request and its feasibility.

## 6 Deploying .NET applications

- Main architectures and deployment modes.
- Web application hosting in Docker.
- Using Visual Studio to deploy in Docker.

### Démonstration

Déploiement d'une application REST vers Docker.

## 7 Cross-platform libraries and MVVM architecture

- Cross-platform .NET architecture.
- Introduction to MVVM architecture.
- Implementation with WPF.
- Implementation with .NET MAUI (mobile applications).

### Démonstration

Creation of a multiplatform application.

## Dates and locations

### REMOTE CLASS

2026 : 23 Mar., 15 June, 26 Oct.

### PARIS LA DÉFENSE

2026 : 23 Mar., 15 June, 26 Oct.