

# Course : Rust, programming

Practical course - 3d - 21h00 - Ref. RUX

Price : 1650 € E.T.

★★★★☆ 4,6 / 5

Rust is a multi-paradigm programming language from the Mozilla Foundation: object-oriented, functional, generic, with modern libraries. This training course will teach you everything you need to know to get to grips with and understand the language. You'll also learn how to manage its functionalities.

## Teaching objectives

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

- ✓ Designing and reading programs in Rust
- ✓ Object programming with structs and strokes
- ✓ Using lambdas, type inference and pattern matching
- ✓ Mastering object lifecycles
- ✓ Use the most common Rust APIs

## Intended audience

Developers, project managers, architects.

## Prerequisites

Good knowledge of a programming language, and knowledge of pointers/references.

## Practical details

### Teaching methods

Teaching method: practical course alternating 50% theory and 50% exercises.

## Course schedule

### 1 Introduction and Rust tools

- A secure, high-performance language: compile-time error detection and controlled panic.
- Rust compiler.
- Cargo for project and package management.
- Documentation with Rustdoc.
- Integrated development environments (IDEs) for Rust.

### Hands-on work

Getting to grips with the language and its tools.

### PARTICIPANTS

Developers, project managers, architects.

### PREREQUISITES

Good knowledge of a programming language, and knowledge of pointers/references.

### 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.

## 2 Rust basics

- Basic Rust types. Mutable and immutable variables.
- Different types of strings.
- Procedural programming and the return of implicit functions.
- Flow control and different types of loops, pattern matching.
- Generic programming with Rust.
- Lambdas expressions and captures.
- Rust macros for metaprogramming.

### Hands-on work

Implement procedural and generic algorithms with Rust.

## 3 Towards object-oriented programming

- The "traits" most common standards: Copy, Clone, Into, Drop...
- Visibility, advertising, privacy through modules and crates.
- Aggregate data with structs and tuples.
- Implementing structs.
- Enum to codify and structure.
- Strongly typed contracts with features and their implementation.

### Hands-on work

Interface-based design.

## 4 Object lifecycle, memory management

- Object life cycle, scopes, possession and borrowing of objects.
- Label object scopes for complex lifecycles.
- Rc<T> reference counters for object sharing.
- Dynamic allocation with Box<T> for lifecycle freedom.
- Pointers, unsafe blocks and smart pointers with Unique<T>, Shared<T> for low-level.

### Hands-on work

Tree structure implementation and lifecycle management.

## 5 Rust libraries

- Call Rust with other languages thanks to Foreign Function Interface (FFI).
- Rust collections.
- I/O libraries: reading and writing files with Rust.
- Multithreading with Rust: synchronizing data access.
- Calling C code with Rust.

### Hands-on work

Multitasking with Rust.

### 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 to review your request and its feasibility.

## Dates and locations

### REMOTE CLASS

2026 : 1 July, 14 Oct., 16 Dec.

### PARIS LA DÉFENSE

2026 : 24 June, 7 Oct., 9 Dec.