

Course : Learn to program (with the C language)

Development novices learn the basics of algorithmics
Practical course - 2d - 14h00 - Ref. ALC
Price : 1500 CHF E.T.

This course introduces you to the basics of programming and algorithms. You'll see the key stages in creating a program using the C language. You'll learn about lexicon, syntax, tools, code organization and testing. C, a classic whose syntax has inspired many other languages.

Teaching objectives

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

- ✓ Structuring programs according to an algorithm
- ✓ Master the lexicon and syntax of a language to write a program
- ✓ Run, debug and test a program
- ✓ Handling data with variables of different types
- ✓ Structuring processes with control structures
- ✓ Understand the organization of a program with procedures and functions

Intended audience

Anyone who needs to learn programming.

Prerequisites

No special knowledge required.

Practical details

Hands-on work

Although this is not a course on the C language, participants will spend 60% of their time working on algorithmic practical exercises, which will then be translated into C language.

Teaching methods

Active pedagogy based on examples, demonstrations, experience sharing, case studies and assessment of learning throughout the course.

Course schedule

PARTICIPANTS

Anyone who needs to learn programming.

PREREQUISITES

No special knowledge required.

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.

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.

1 A program

- What is a program?
- What is a language? The different paradigms.
- What is an algorithm? Pseudo-language.
- Compilers. Executables.

Example

Presentation of a first pseudo-language algorithm.

2 Genesis of a first program

- Writing a program: syntax and instructions.
- Compile and run the program.
- What is a bookshop? Its role, its use.

Hands-on work

Write, compile and run a first program in C language.

3 Programming rules

- Naming convention. Syntax convention.
- Using comments. Why comment on developments?
- Improve program readability: code indentation, code breakdown, etc.

Example

Program presentation with naming conventions, comments and indentations.

4 Variables

- What is a variable?
- Primitive types: integers, strings, real numbers, others.
- Variable declaration, definition and initialization. Constants.
- Input, display, assignment, type conversion.
- Organize data in tabular form.

Hands-on work

Manipulate variables and arrays in programs.

5 Operators and expressions

- The different operators (addition, equality...).
- Combination of operators.
- Boolean expression.

Hands-on work

Handling operators in a program.

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.

6 Control structures

- Instruction blocks (notion of Start... End).
- Alternative selections (if, if-then-then...).
- Iterative loops (tant-que-répéter, répéter-jusqu'à, pour-de-à).
- Instruction nesting.

Hands-on work

Use of control structures in programs.

7 Procedures and functions

- Definitions: procedure, function. Interest.
- Parameter passing.
- Function return code. Calling functions.

Hands-on work

Using a procedure and a function in a program.

8 Program maintenance, debugging and testing

- Interpret error messages.
- Use a debugger: step-by-step program execution, breakpoints, inspect variables.
- Unit testing.

Hands-on work

Use a debugger to control program execution.