

Fortran Programming

Audience Course Fortran Programming

The course Fortran Programming is intended for anyone who wants to learn how to program in the Fortran programming language.

Prerequisites Course Fortran Programming

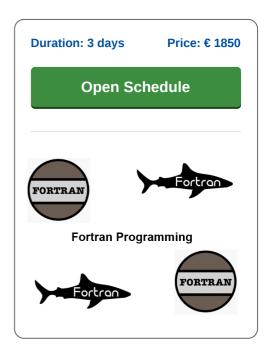
To participate in this course, basic knowledge of programming in another programming language is beneficial to the understanding but is not required.

Realization Training Fortran Programming

The theory is discussed on the basis of presentation slides. The theory is explained further through demos. After discussing a module, there is the possibility to practice. Course times are from 9.30am to 16.30pm.

Certification Course Fortran Programming

After successful completion of the course participants receive an official certificate Fortran Programming.



Content Course Fortran Programming

In the course Fortran Programming participants learn to develop applications in the latest version of the Fortran language. Fortran was originally created in 1957 to perform mainly scientific calculations. Over time however, Fortran has evolved into a higher programming language with support for modern concepts such as object-oriented programming.

Fortran Intro

The course starts with an overview of the development of Fortran and then covers data descriptions, control structures, data processing and Fortran Rules.

Variabelen and Data Types

Also variables, data types and operators in Fortran are treated. Special attention is paid to Fortran arithmetic with rounding, truncation and integer division.

Tabular Data and Arrays

Subsequently tabular data and arrays are also discussed. Attention is paid to allocatable arrays, multidimensional arrays, array constructors and operations that work on entire arrays.

File I/O

Fortran naturally also has facilities for accessing the file system. Formatted and Unformatted File I/O are therefore discussed in the course and Records, Data Edit Descriptors and End of Record indicators are treated as well.

Functions and Flow Control

Then it's time for functions and control flow in Fortran. Attention is paid to library functions, transformation functions, recursive functions, user defined and pure functions. And the various control flow constructions for selections and iterations are reviewed as well.

Characters

Special attention goes to dealing with characters in Fortran. Character Input, Character Operations, Character Sets and Edit Descriptors are discussed.

User Defined Types and Pointers

Finally special types in Fortran such as User Defined Types and pointers are on the program of the course and object oriented programming in Fortran with classes, objects and inheritance is treated.

Tel.: +31 (0) 30 - 737 0661

Locations



Modules Course Fortran Programming

| Module 1 : Fortran Intro | Module 2 : Language Syntax | Module 3 : Arrays |
|---------------------------|----------------------------|--------------------------------|
| Fortran Language | Variables | Tabular Data |
| Fortran's Origins | Names and Values | Dimension Attribute |
| Version 77 to 2008 | Data Types | Setting Array Size |
| Fortran Compilers | Fortran Characters | Indexing |
| Structured Programming | Operators | Loop over Arrays |
| Data Description | Arithmetic | Allocatable Arrays |
| Control Structures | Expression Equivalence | Multiple Dimensions |
| Data Processing | Rounding and Truncation | Whole Array Manipulation |
| Fortran Rules | Integer Division | Element Ordering |
| Input and Output | Type Conversion | Array Constructors |
| Module 4 : File I/O | Module 5 : Functions | Module 6 : Control Flow |
| Opening Files | Predefined Functions | Selections and Iterations |
| Close Statement | Generic Functions | Block if Statement |
| Writing Files | Elemental Function | if then endif |
| Formatted and Unformatted | Transformation Functions | else Statement |
| Data Edit Descriptors | Function Usage | case Statement |
| Skipping Lines | Intrinsic Procedures | do loop |
| Records | Custom Functions | do while |
| Data Transfer Statements | Local Variables | cycle Statement |
| inquire Statement | Recursive Functions | exit Statement |
| End of Record | Pure Functions | Sentinel Usage |
| iostat and iomsg | Rules and Restrictions | forAll Statement |
| Module 7 : Characters | Module 8 : Special Types | Module 9 : Modules and Classes |
| Character Input | Type Definition | Module Syntax |
| * Edit Descriptor | Variable Definition | Global Data |
| a Edit Descriptor | Nested Derived Types | private, public, protected |
| Character Operations | Pointers | use Statement |
| Substrings | Pointer Concepts | Explicit Interfaces |
| Character Functions | Referencing Pointers | Classes and Objects |
| len and len_trim | Pointer Allocation | Structure Constructors |
| Collating Sequence | Pointer Assignment | Generic Names |
| Character Sets | C loc Function | Polymorphic Variables |
| scan Function | Memory Leaks | Inheritance |