

Updated on 29/11/2023

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VHDL training: The language for electronic systems

2 days (14 hours)

Presentation

Our VHDL training course will teach you how to code with a view to programming an electronic system, using the VHDL language to design the electronic architecture for your FPGAs (field-programmable gate arrays). VHDL has many advantages:

- An excellent language for building computer objects
- Highly scalable, although limited to hardwares
- Performance can be tracked using a simulator
- It supports multidimensional arrays

Our training will focus on the basics of the language, i.e. syntax, data types and basic operators. But also flow control and advanced project setup. At the end of the course, you'll know how to use components and design complex modular circuits.

Objectives

- Understanding VHDL syntax
- Design your own circuits
- Understanding and using components

Target audience

- Project Manager
- Consultants
- IT managers
- IT Department staff

Prerequisites

Basic general knowledge of electronics and information technology

Our VHDL training program

Day 1: Introduction to VHDL and basic concepts

Morning

- VHDL overview
- Introduction to VHDL syntax and the structure of a VHDL file
- Introduction to basic VHDL data types (integers, Booleans, etc.)
- Introduction to basic VHDL operators (arithmetic, comparison, etc.)
- Creation of a first simple VHDL project to illustrate basic concepts

Afternoon

- Introduction to VHDL flow control structures (if/then/else, while, etc.)
- Creation of a more complex VHDL project using the concepts covered during the day.
- Practical exercises

Day 2: Advanced circuit design in VHDL

Morning

- Introduction to sequential data structures in VHDL (registers, counters, etc.)
- Introduction to signal types in VHDL (signal, variable, etc.)
- Using processes to design sequential circuits
- Creating a VHDL project using sequential data structures and processes

Afternoon

- Introduction to VHDL components and their use in modular circuit design
- Using components and libraries to design modular circuits more complexes
- Practical exercises using components

Companies concerned

This course is aimed at both individuals and companies, large or small, wishing to train their teams in a new advanced computer technology, or to acquire specific business knowledge or modern methods.

Positioning on entry to training

Positioning at the start of training complies with Qualiopi quality criteria. As soon as registration is finalized, the learner receives a self-assessment questionnaire which enables us to assess his or her estimated level of proficiency in different types of technology, as well as his or her expectations and personal objectives for the training to come, within the limits imposed by the selected format. This questionnaire also enables us to anticipate any connection or security difficulties within the company (intra-company or virtual classroom) which could be problematic for the follow-up and smooth running of the training session.

Teaching methods

Practical course: 60% Practical, 40% Theory. Training material distributed in digital format to all participants.

Organization

The course alternates theoretical input from the trainer, supported by examples, with brainstorming sessions and group work.

Validation

At the end of the session, a multiple-choice questionnaire verifies the correct acquisition of skills.

Sanction

A certificate will be issued to each trainee who completes the course.