

# Course : C++, graphical application development in QT

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

*Price : 3070 € E.T.*

★★★★☆ 4,1 / 5

QT is an object-oriented framework for creating HMIs. Written in C++, it offers components for graphics (widgets), data access, network connections and ..... You will learn how to identify the important elements of a QT project, manipulate the various components and use them with XML.

## Teaching objectives

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

- ✓ Developing graphics applications with the QT Framework
- ✓ Discover the different types of projects and how they are structured
- ✓ Master the various graphic components and their interactions
- ✓ Understanding and implementing the QT plugin system

## Intended audience

Developers and project managers.

## Prerequisites

Good knowledge of the C++ language. Basic knowledge of XML. Experience in C++ development required.

## Course schedule

### 1 Introducing the QT language

- Language history.
- The various possible uses.
- Other existing graphics libraries.

### 2 The different types of project

- Overview of the different types of project with QT.
- Introducing QT Creator.
- The basic structure of an HMI-based application.

### Exercise

Creation of a first QT application.

## PARTICIPANTS

Developers and project managers.

## PREREQUISITES

Good knowledge of the C++ language.

Basic knowledge of XML. Experience in C++ development 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.

### 3 Important elements of a project

- Graphic design pro files (ui).
- Internationalization management files (ts and qm).
- Basic language types (qint, qfloat...).
- Compiling with qmake.
- The QObject class.
- Introduction to the MVC model.
- The MVC model in QT.

#### Exercise

Study of a project file to set up the application.

### 4 The various graphics components

- Basic HMI components (QMainWindow, QFrame, QLabel...).
- Managing component positioning.
- Dialog boxes (QDialog).
- Menus (QMenu).
- Predefined and customized templates.
- QT's visual design tools (QT Designer...).

#### Exercise

Setting up the application structure.

### 5 Event management

- Notions of signal and slot.
- Declaration of signals and slots.
- Install event filters.
- Access the application during heavy processing (timer and hasPendingEvents).

#### Exercise

Event management added to the application.

### 6 The QT plug-in system

- Understanding plug-ins with QT.
- The different plug-in classes (QStylePlugin...).
- What you need to set up a plug-in for QT.
- Development of applications managing plug-ins.

#### Exercise

Development of a simple plug-in.

### 7 Going further with QT

- Using XML with QT. Reminder of XML, DOM and SAX parsers. Parsing XML documents using QT.
- Internationalization. Unicode reminder. The QTranslator object. The QT Linguist application.
- Cross-platform applications. QT Mobility.

#### Exercise

Utilisation d'un fichier XML pour stocker les données de l'application.  
Internationalisation de l'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 to review your request and its feasibility.

## Times

Courses take place from 09:00 to 12:30 and from 14:00 to 17:30.

Participants may arrive beginning at 08:45. Breaks and lunches are complimentary.

For four- and five-day hands-on courses, sessions end at 16:00 on the last day of the course, regardless of the teaching mode..

## Dates and locations

### REMOTE CLASS

2026 : 22 June, 5 Oct., 14 Dec.

### PARIS LA DÉFENSE

2026 : 22 June, 5 Oct., 14 Dec.