

KOENIG SOLUTIONS · COURSE OUTLINE

QT and QML Associate

Learn to build Qt and QML applications, from widgets and QML syntax to C++ integration, 3D scenes and automated testing.

5 Days

DURATION

18

MODULES

61

TOPICS

COURSE OVERVIEW

This course covers installing and setting up the Qt development environment, followed by building user interfaces with Qt Widgets and an introduction to QML syntax, structure and composition. It continues with combining QML and C++, Qt Quick Controls, providing C++ models to QML, and Qt Quick 3D scenes, materials and post-processing. Later modules cover UI design with Qt Design Studio, building and testing Qt Quick applications, exposing C++ to QML, automated testing with Squish, CMake, and multithreading, concluding with a final project that combines these concepts into a functional Qt and QML application.

WHO THIS COURSE IS FOR

Software Developers

QML Developers

UI Designers

QA Engineers

Application Architects

PREREQUISITES

- Basic programming knowledge, preferably in C++ or JavaScript.
- Familiarity with object-oriented programming concepts and basic software development practices.

LEARNING OBJECTIVES

- Install and configure the Qt development environment
- Create and manage user interfaces with Qt Widgets
- Describe QML syntax, structure and key concepts
- Integrate QML with C++ classes and register custom types
- Apply Qt Quick Controls to style and layout applications
- Provide C++ models and proxy models to QML views
- Implement Qt Quick 3D scenes, materials and post-processing effects
- Configure automated tests using Squish and manage threads with Qt

18 Modules, 61 Topics

DAY 1 Installation, Setup, and Introduction to Qt

01

How to Install Qt

TOPICS

Setting up the Qt development environment

02

Getting Started With Qt Creator 14

TOPICS

- Launch Qt Creator IDE and explore its basic views
- Create a new project to try out basic functionalities

03

Introduction to Qt Widgets

TOPICS

Basics of Qt Widgets · Creating and managing basic widgets

DAY 2 Deep Dive into Qt Widgets and Basic QML

04

Advanced Qt Widgets Concepts

TOPICS

Advanced widget concepts · Customizing widgets and layouts · Detailed use of Qt Widgets · Implementing more complex user interfaces

05

Introduction to QML

TOPICS

What is QML? · Why would you use QML? · The QML syntax · The key QML concepts · How do you structure QML? · How do you compose QML UIs?

06

QML Integration Basics

TOPICS

- What are the roles of QML and C++ in Qt applications?
- What are the benefits of combining QML and C++ in Qt applications?
- How do you register and use C++ classes so that they are usable within QML?

DAY 3

Advanced QML and Qt Concepts

07

Introduction to Qt Quick Controls

TOPICS

- What are Qt Quick Controls?
- What properties are shared between Controls?
- How can you define the layout of elements within your applications?
- How do you use the basic Qt Quick Controls style?
- How can you simply style your components?
- How do you define your QML types with a QML file?

08

Providing Models from C++ to QML

TOPICS

What is the Model/View Programming in Qt/QML? · What Models and Views Qt offers? · How to create custom C++ models? · How to access C++ Models from the QML? · What are Proxy models?

09

Qt Quick 3D: Views, Scenes & Nodes

TOPICS

What is the Model/View Programming in Qt/QML? · What Models and Views Qt offers? · How to create custom C++ models? · How to access C++ Models from the QML? · What are Proxy models?

10

Introduction to Qt Quick 3D: Custom Materials, Render Settings & Post-Processing

TOPICS

- What are custom materials, and how do you write them?
- What are some of the different settings that can be used to control the global rendering environment?
- What are post-processing effects?
- How can you write your own post-processing effects?

11

Getting Started with Qt Design Studio

TOPICS

- Learn what Design Studio is and why it is a powerful tool supporting the collaboration of designers and developers
- Launch Qt Design Studio for the first time
- Go through its basic views
- Create a new project that you can use to try out some of the basic functionalities

12

UI Design with Qt Design Studio

TOPICS

- Advanced UI design techniques
- Implementing complex designs using Qt Design Studio

13

Creating a Simple Qt Quick Application

TOPICS

- Building and deploying a simple Qt Quick application
- Testing and debugging

14

How to Expose C++ to QML

TOPICS

- Recognise why mixing C++ and QML is beneficial
- Understand what registering is and how it is done
- Learn how to use a custom QML type as a property type

15

Automated Testing with Squish

TOPICS

- How to manage Applications Under Test in the Squish IDE
- How to create new tests in the Squish IDE
- How to use verification points to validate GUI objects

DAY 5

Final Project and Review

16

Building with CMake: Getting Started with CMake and Qt

TOPICS

- Learn what CMake is and how it is used in application development with Qt

17

Let's Get Thready! Multithreading with Qt

TOPICS

- Understand the concept of multithreading and how it can be used to improve the performance of applications
- Learn how to create threads in a Qt application
- Learn how to manage threads in a Qt application
- Understand how to use a thread pool to manage threads for background computing

18

Final Project

TOPICS

- Creating Your First App with Qt Design Studio
- Combining all learned concepts into a comprehensive project
- Designing and developing a functional Qt and QML application
- Review and presentation of the final project

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

FLEXIBLE DELIVERY

Learn the Way That Suits You

Classroom Training

Live Online Classes (ILO)

Fly-Me-A-Trainer (FMAT)

Flexi (Self-Paced)

1-on-1 Training

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