

Qt Tutorials Course Outline

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Qt Core

- **Primer**
 - Overview of C++
 - History
 - Modern C++
 - Qt and C++
 - Main function
 - Standard library
 - Hello world
 - Variables
 - Comments
 - Booleans
 - Numbers
 - Enums
 - Structs
 - Pointers
 - Creating
 - Deleting
 - Stack vs Heap
 - Memory management
 - Flow Control
 - IF ELSE
 - Ternary
 - Switch
 - Do While
 - For and For Each
 - Functions
 - Creating
 - Returning values
 - Overloading
 - By ref
 - By value
 - Classes
 - Creating
 - Importing
 - Constructors
 - Deconstructors
 - Inheriting
 - Overriding
 - Abstract
 - Scope

- Main
 - Functions
 - Classes
 - Global
- Error handling
 - Errors vs exceptions
 - Throwing
 - Try catch
 - Finally
 - Catch All
- Libraries
 - Creating
 - Importing
 - Using
- **Beginner**
 - Qt and Qt Creator
 - Overview
 - Licensing
 - Downloading
 - Installing
 - Configuration
 - Kits
 - Project files
 - Project Types
 - Console
 - Widget
 - QML
 - Library
 - Example: Hello World
 - Common Classes
 - QObject
 - qint
 - QString
 - QDate
 - QTime
 - QDateTime
 - QVariant
 - Example: using a QVariant to store unknown data types
 - Pointers
 - Parent and Child
 - QWeakPointer
 - QScopedPointer
 - QSharedPointer
 - Example: Using QScopedPointer
 - Collections

- QList
 - QSet
 - QHash
 - QMap
 - QLinkedList
 - Example: Lists of objects
- File System
 - QDir
 - QFile
 - QFileInfo
 - Reading Files
 - Writing files
 - Appending files
 - Write modes
 - QFileSystemWatcher
 - QLockfile
 - Example: Reading files
- **Intermediate**
 - Encoding data
 - ASCII
 - UTF-8
 - XML
 - JSON
 - Base64
 - Serializing objects
 - Example: Serialize object and load it from disk
 - Signals and Slots
 - Creating
 - Connecting
 - Disconnecting
 - Example: Working with properties
 - Design Patterns
 - Singleton patterns
 - Parent child
 - Factories
 - Prototypes
 - Macros
 - QObject Macro
 - qDeleteAll
 - qDebug
 - qFill
 - qSort
 - qCopy
 - qFind
 - qSort

- System
 - QSysInfo
 - QSettings
 - Determine OS at run time
 - Example: Run code depending on the OS
- Timer
 - QTimer
 - SingleShot
 - Repeating
 - Example: File watcher
- Meta Object System
 - QMetaObject
 - Q_ClassInfo
 - Invoke Method
 - Return Type
- **Advanced**
 - Threads
 - MoveToThread
 - Qthread
 - QFuture
 - QThreadPool & QRunnable
 - QConcurrence
 - Example: Threaded TCP Server
 - Sockets
 - Networking fundamentals
 - TCP vs UDP
 - TCP Socket
 - TCP Server Socket
 - QNetworkAccessManager
 - UDP
 - Example: TCP – serialize object and send it to client
 - Models
 - Database
 - Charts and Plotting
 - Plugins
 - Creating
 - Loading
 - Using

Qt Widgets

- Beginner
 - Dialogs
 - Buttons

- Input
- Layouts
- Containers
- Intermediate
 - QMainWindow
 - ListViewWidget
 - Listview and Model
 - TreeviewWidget
 - Treeview and Model
- Advanced

QML

- Beginner
- Intermediate
- Advanced

Qt Embedded

- Beginner
- Intermediate
- Advanced

Qt Masters – each one is a separate class

- 3D – Use Qt 3d Studio and Blender
- Firebase
- Boost.io
- OpenCV
- Encryption – OpenSSL or Botan
- High performance TCP Server
- Database