Summary
This course introduces mobile application programming and system-level power management for the Android OS. The main objective of this lecture series is to train students to develop low-power applications on mobile and smartphone platforms. Each student is provided with an Android-based device.

Content
• Introduction to system-level architectures of tables and smartphones
• Introduction to Android and Android Architecture overview
• Basics of Java programming
• Setup of Android Development environment
• Android Application Fundamentals and Java Essentials
• Apps Interface and main Building Blocks
• Hardware resources and data storage specification
• Android Media API
• Deployment to Market and "monetization"

Keywords
Embedded systems, mobile platforms, smartphones, Android, system-level design, advanced programming.

Learning Prerequisites
Required courses
Microprogrammed Embedded Systems (Systèmes Embarqués Microprogrammés)

Important concepts to start the course
• Basics of Object-Oriented programming (C++ or Java)
• Basic Software Engineering (Compilation, Debugging, etc.)
• Linux OS (optional).

Learning Outcomes
By the end of the course, the student must be able to:

• Develop
• Elaborate
• Structure
• Integrate
• Optimize
• Realize
• Assess / Evaluate
• Create

Transversal skills

• Access and evaluate appropriate sources of information.
• Evaluate one's own performance in the team, receive and respond appropriately to feedback.
• Assess one's own level of skill acquisition, and plan their on-going learning goals.
• Communicate effectively, being understood, including across different languages and cultures.
• Set objectives and design an action plan to reach those objectives.

Teaching methods

The course content will include theory classes, as well as hands-on labs where students will program real Android-based physical devices.

Expected student activities

Individual exercises in Android-based platforms, interact in the course, develop a complete project in the laboratory.

Assessment methods

The evaluation will be based on a 2- or 3-person project done in the last part of the semester.

Supervision

Office hours Yes
Assistants Yes
Forum Yes

Resources

Bibliography
Polycopié - "Course Notes".
Support and list of references provided in class, cf. in course URL

Websites

• http://qt-summerschool.epfl.ch/