**Lab on app development for tablets and smartphones**

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**Cursus**
- Génie électrique et électronique: MA1, MA3, Opt.

**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 tablets 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

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Resources

Bibliography

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

Websites

• [http://qt-summerschool.epfl.ch/](http://qt-summerschool.epfl.ch/)