

EE-490(g)

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

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Cursus	Sem.	Type
Electrical and Electronical Engineering	MA1, MA3	Obl.
Electrical and Electronical Engineering	MA1, MA3	Opt.

Language of teaching	English
Credits	4
Withdrawal Session	Unauthorized Winter
Semester	Fall
Exam	During the semester
Workload	120h
Weeks	14
<b>Hours</b>	<b>4 weekly</b>
TP	4 weekly

**Number of positions**

**Il n'est pas autorisé de se retirer de cette matière après le délai d'inscription.**

**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-summer-school.epfl.ch/>