

**APPLICATIONS CONCURRENTES, MOBILES ET RÉPARTIES EN JAVA****SOFTWARE ENGINEERING: MODEL AND PROCESS BASED SOFTWARE DEVELOPMENT****Lecturers:** Stéphane DERRODE, Alexandre SAIDI

| Lecturers : 16 | TC : 0.0 | PW : 0.0 | Autonomy : 10 | Study : 22 | Project : 0.0 | Language : FR

Objectives

After the discovery of object programming in the core curriculum, this course aims to continue learning object programming by studying : human-computer interfaces, or how to offer the user a nice ergonomic interface ; concurrency, or how to use several cores of a microprocessor to make a parallel calculation; distributed programming, or how to make remote computers work together on a network. This is one of the principles of cloud computing; mobile programming, or how to program on Android. Java is a language widely used in the industry, with vast libraries to facilitate programming and essential to mastering Android programming.

Keywords : Computer science, Java, Android, concurrency, parallelism, distributed programming, HCI, user interface**Programme**

- The Java language
- Event-based programming (human-machine interfaces, HMI)
- Concurrent programming (processes, parallel computing)
- Distributed programming (Java RMI)
- Programming for mobile computing devices (Android, Android Studio)

Learning outcomes

- Know how to program in Java an application distributed on several computers linked by a network.
- Know how to develop a concurrent application using several processors.
- Know how to program a user interface (GUI) that is ergonomic and fluid.
- Be able to develop an Android application.

Independent study**Objectifs :** Carry out several group tasks aimed at producing a functional application based on the concepts studied in class.**Méthodes :** Projects in groups of 2 students, to be carried out in sessions and independently.**Core texts**

Luigi Zaffalon, *PROGRAMMATION CONCURRENTE ET TEMPS RÉEL AVEC JAVA*, Presses Polytechniques Romandes, 2007
Reto Meier *DÉVELOPPEMENT D'APPLICATIONS AVANCÉES*, Pearson France, 2012
Serge Ungar, Nazim Benbourahla *DES FONDAMENTAUX DU DÉVELOPPEMENT JAVA À LA MISE EN PRATIQUE D'UNE APPLICATION SOUS ANDROID*, ENI, 2012

Assessment

Grade = 50% knowledge + 50% skills
Knowledge grade = 100% final exam
Know-how mark = 33% for each of the 3 mini-project RCs.