2IN1570 – Web and mobile application development

Instructors: Benoit VALIRON
Department: DÉPARTEMENT INFORMATIQUE
Language of instruction: FRANCAIS
Campus: CAMPUS DE PARIS - SACLAY
Workload (HEE): 40
On-site hours (HPE): 27,00
Elective Category : Fundamental Sciences
Advanced level : Yes

Description
Current web technologies go beyond than simple static webpages. Dedicated to interactions, they are versatile enough to be able to design application for all kind of terminals, from desktop to smartphones. Connected to the internet, these apps exchange data based on a common set of formats to structure and manipulate it, such as XML for example.

The objective of this course is to discover the technologies on which are based web-apps and mobile-apps, focusing on the use and manipulation of concepts and the realization of a small, yet complete application.

Quarter number
Intensive week at the end of the SG8

Prerequisites (in terms of CS courses)
The course "Information Systems and Programming" (ISP)

Syllabus

The course shall consists of the following 5 modules. 1 - Core concepts and technologies for the web ; 2 - Dynamic interaction with the user in the browser ; 3 - Structured data ; 4 - Architecture of a web-app and of a mobile-app ; 5 - Advanced topics.

Class components (lecture, labs, etc.)
The course focuses on practicing the concepts: The presentation of a notion is followed with a lab-session to immediately apply and practice it.

Grading

The grading of the course is based on two things : 1 - continuous assessment, each lab session being submitted for evaluation, and 2 - each student will build and hand over a project implementing the concepts seen along the course.

Course support, bibliography

The course consists in a series of tutorials, available online as the course will progress.

One can nonetheless cite the following bibliography:

- W. S. Means, E. Rusty Harold, XML in a Nutshell: A Desktop Quick Reference. O'Reilly, 2001.
- A. T. Holdener III, Ajax: The Definitive Guide. O'Reilly, 2008.
- B. Bibeault, Y. Katz, jQuery in Action. Manning, 2008.
- D. Flanagan, JavaScript: The Definitive Guide. O'Reilly, 2011.

Resources

The course is made of 5 modules incrementally presenting the core concepts of web and mobile programming. Each module consists in a theoretical part (with a corresponding lecture) and a practical part (lab sessions) for the students to manipulate the concepts.

Learning outcomes covered on the course

At the end of the course, the students will be able to

- Know and use standards techniques of web-app design
    - Describe the various parts composing a web-app.
    - Implement each technology seen along the course to a simple case-study.
- Design and build a complete web-app, with client and server.
    - Propose a consistent orchestration of the components of the web-app
    - Allow different access mode to the service depending on the web-client
    - Evaluate and choose the pertinent technologies for a given goal

Description of the skills acquired at the end of the course

Skill C6.4 : Solve problems through mastery of computational thinking skills.