II.2316 – II.2416

Information System Architecture

Person in charge: Zakia Kazi-Aoul
Prerequisites: II.1101 / II.1201 Data Bases and Web Technologies, II.1102 / II.1202 Algorithmic and Programming
Organization: lectures/conferences and workshops
Assessment: Written examination, continuous assessment with presentations
ECTS: 5 credits

Context

An Information System (IS) represents all the elements involved in the management, the processing, the transport and the dissemination of information within a given organization.

Objectives

Skills

This module aims to familiarize the future architect with the components of an information system, to guide him in the realization of a system or a part of it. At the end of this module, the student will be able to evaluate a system and will be able to make the right architectural, technical and application choices in order to improve it while guaranteeing the integration of heterogeneous technologies in one and the same information system.
In addition to the implementation of an IS, this module will allow to master the scripting in order to administer the systems. It will also enable us to understand the associated issues with the evolution of a data center through virtualization or Cloud Computing.

Knowledge

The teachings in this module allow to develop the following concepts and skills.
Concepts
- Integration architecture
    - Service-Oriented Architecture (SOA)
    - Web services
    - Enterprise Service Bus (ESB)
    - Enterprise Application Integration (EAI)
    - ETL
- Exchange and orchestration technologies:
    - Asynchronous messages (JMS)
    - Message Oriented Middleware (MOM)
    - Business Process Management (BPM)
    - Workflow

- Web Architecture
    - Layered model
    - Framework and application server (JEE, .Net)
    - Customer-oriented development
- Data layer in an SI:
    - Big Data, Data Warehouse, NoSQL, etc.
- Production and exploitation in an IS
- IS Security
- Technical architecture (physical)
    - Network Infrastructure
    - Components of a Data Center
- Cloud Computing Architecture
    - Saas, Paas, Iaas, etc.
- Virtualization

Expertise
- Understand the role of the architect and set up a software and / or hardware architecture in an IS
- Master IS concepts and IS architecture
- Organize an application architecture by third parties and layers using software components
- Mastering integration architecture models
- Establishing a service-oriented architecture
- Know how to virtualize and administer an operating system
- Implementing a Cloud Computing environment