

## Middleware and services



ECTS  
5 crédits



Hourly volume  
62h

### Introducing

---

### Objectives

This training consists of 3 parts, the following concepts will be discussed:

- Service oriented architectures
- Middlewares
- The Middleware for the Internet of Things through standards and the deployment of an architecture of sensors networks.
- The concept of Cloud and especially Infrastructure As A Service.
- Dynamic management through the principles of autonomic computing

The student will be able to:

- Design and develop a service oriented architecture
- Implement Web services SOAP and Rest
- Develop a service composition (orchestration) via BPEL
- Know the main standards of the Internet of Things
- Deploy an architecture according to a standard and implement a sensor network system services
- Understand the concept of cloud
- Use a cloud infrastructure in Infrastructure as a Service
- Recognise the different architecture types (type 1 and type 2) of cloud hypervisors
- Provision service-based (develop, deploy, manage) in cloud environment using Docker containers
- Deploy and adapt an Internet of things platform on cloud and manage it with autonomic concept

### Necessary prerequisites

---

Java programming, Object Oriented design, base notion on network, XML and XML schema, NodeJS

### Practical info

---

### Location(s)

 Toulouse