# *Programma del corso : Distributed Systems (6 CFU)*

- **Introduction and terminology**
- **Foundations:**
  - *Inter-process communication (IPC)*
  - *Remote process concurrency and synchronization*
  - *Naming services*
- **Distributed Systems Architecures:**
  - Centralised and Decentralysed architectures:
  - Synchronous and asynchronous communication, multilayered architectures
  - Peer-to-peer systems.
- **Architecture types**:
  - Overlay network; not structured overlay network; Superpeer; hybrid network
  - Cluster: architecture and host communication methods; features (Fail-over service, Load-balancing, H P C)
  - Grid: architecture and host communication methods ; features
  - Pervasive systems: domotic systems (PDA, smart phone, recommender systems, …), health systems (Body Area Network) sensors network (Mesh network, Mobile ad hoc network,…)
- **Distributed Systems Security:**

  Tools and mechanisms for security; cryptography; authentication and key distribution; Kerberos.

## Laboratory:

*UNIX remind: kernel, file system, processes, threads, daemons, Network administration, NTFS,*

*Remote processes communication: the tools (socket, RPC, JAVA RMI)*