

Networks and protocols security



ECTS
3 crédits



Hourly volume
40h

Introducing

Objectives

At the end of this module, the student will have understood and be able to explain (main concepts):

- the main concepts of network security, main threats targeting these networks and associated protection mechanisms
- the main concepts of non wired network security (Wifi, GSM, GPRS, LTE, UMTS)
- the main weaknesses of the network protocols and how to eliminate these weaknesses

The student will be able to:

- Understand and carry out basic networks attacks in the context of intrusion tests ; identify and implement protection mechanisms mitigating these attacks, use and install protection infrastructures
- Choose a security solution dedicated to a Wifi access point; carry out intrusion tests on an access point
- Distinguish the security objectives in different cellular networks ; describe authentication mechanisms and key exchange protocols ; describe the different attacks targeting these different technologies ; identify the architectural components of security in operator networks
- Identify the weak protocols currently used in networks ; propose solutions for these weaknesses, through the use of tunnels when this is necessary ; use SSH and its associated functionalities (file transfers ,proxies, etc) ; describe the good practices for the definition of a secure network protocol

Necessary prerequisites

Knowledges and skills in computer networks and the underlying protocols are required (TCP/IP, routing protocols). The corresponding terminology must be known and the main concepts of cryptography must be clearly understood.

Practical info

Location(s)

 Toulouse