

Réseaux & Services

Réseau - Partie 1

IDENTIFICATION

CODE : IST-4-NET1
ECTS : 3.0

HORAIRES

Cours : 0.0 h
TD : 20.0 h
TP : 0.0 h
Projet : 0.0 h
Face à face
pédagogique : 20.0 h
Travail personnel : 20.0 h
Total : 40.0 h

ÉVALUATION

- Small project (with 4 hours of assistance) on computers
- 2 hours of presentation of the project by the students

SUPPORTS PÉDAGOGIQUES

LANGUE D'ENSEIGNEMENT

Anglais

CONTACT

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OBJECTIFS RECHERCHÉS PAR CET ENSEIGNEMENT

The main objective of this course is to understand the basic mechanisms of IP networks, both over Ethernet and 802.11 networks. After a general introduction to networking principles, we will introduce the classical OSI Network Stack as a comprehensive understanding to networking protocols and architectures.

Medium Access Control protocols will be considered for wired and wireless environment: Ethernet [802.3] and Wi-Fi [802.11] will be discussed in depth. We will focus the main part of this course on TCP/IP [Data Link and IP - Communication over IP - Transport layer UDP/TCP - IP addressing and basic routing - Advanced Networking, Filters and VPN - C networking programming].

PROGRAMME

- Introduction to networking
- Fundamentals of local networking (IEEE 802.11, 802.3)
- Data Link and IP networks
- Addressing and routing
- Transport protocols (TCP, UDP)
- Introduction to networking programming

BIBLIOGRAPHIE

- [1] TCP/IP Illustrated, Volume 1: The Protocols, W. R. Stevens, Addison Wesley
- [2] TCP/IP Illustrated, Volume 2: The Implementation, W. R. Stevens, Addison Wesley
- [3] The IEEE 802.11 Handbook: A Designer's Companion, B. O'hara, A. Petrick, Institute of Electric & Electronic Engineers.
- [4] Computer Networking: A Top-Down Approach: International Version, J. F. Kurose, K. W. Ross, Pearson Education.
- [4] Ad Hoc Mobile Wireless Networks: Protocols & Systems, C. K. Toh, Prentice Hall.
- [5] VANET: vehicular applications and inter-networking technologies, H. Hartenstein, K. Laberteaux, Wiley.

PRÉ-REQUIS

Basic networking. Wireless networks are not pre-requisite but are recommended.