

Course Syllabi

1. TICS-00061 COMPUTER NETWORKS

2. 192 credits hours.

3. Bibliography

- Redes de Computadoras., Andrew S. Tanenbaum, David J. Wetherall, 2012
- Comunicaciones y redes de computadoras, Stallings, William, 2013

4. Specific Course Information

- a. This subject studies the different data communication protocols used in computer networks, based on the OSI Reference Framework and the architectural model TCP/IP. The subject begins with a first approach to the study of hardware and network software, and makes a comparison between OSI and TCP/IP. A comprehensive and in-depth study is carried out of the following aspects: the different physical means of transmission; the protocols that convert the different physical means of transmission into reliable communication channels; protocols that allow sharing of physical means of transmission; routing schemes and routing protocols so that messages, through the different networks, reach the final destination; flow control, congestion and quality of service. The study ends by reviewing the communication protocols of the highest level of abstraction and which are used by the end users.
- b. Prerequisites:
 - MAES-00130 LINEAR SYSTEMS AND SIGNALS
 - TICS-00053 COMPUTER ORGANIZATION AND ARCHITECTURE

5. Learning Objectives of the Course

- a. Know the characteristics of computer networks and develop skills to install, configure and maintain network services.
 - Know the characteristics and limitations of physical means of transmission
 - Understand the purpose and operation of communication protocols that operate in different layers of the architectural network model.
 - Install, configure and operate the different network services.
 - Maintenance of the computer network.
- b. Learning Outcomes
 - Knows the purpose and operation of communication protocols that operate in different layers of network.
 - Install and configure the different types of network.
 - It puts the different user applications into operation.
 - It has a broad, deep and structured concept of computer networks.

6. Course Topics

- Introduction
- Physical layer
- Data link layer
- Environmental access control subcape
- Network layer
- Transport layer
- Application layer