Summary
This course provides an introduction to computer networks. It describes the principles that underly modern network operation and illustrates them using the Internet as an example.

Content
• Overview of Internet operation (main components and protocols).
• Application layer (web, cookies, peer to peer).
• Socket programming (how to write a very simple network application).
• Transport layer (UDP, TCP, congestion control).
• Network layer (IP forwarding and basic routing).
• Data link layer (switching).
• Security (secure email, SSL, IPsec).

Keywords
• Computer networks
• Internet
• HTTP
• Peer-to-peer networks
• Sockets, TCP/IP, congestion control, routing, switching, network security.

Learning Prerequisites
Required courses
• CS 107 - Introduction to programming
• COM 101 - Advanced Information Computation Communication I

Learning Outcomes
By the end of the course, the student must be able to:
• Design simple network applications.
• Choose which functions to implement at each network layer.
• Compare different network protocols.
• Perform simple network troubleshooting.
• Use simple network monitoring tools.
• Implement simple client-server applications.
• Investigate simple network attacks.
• Explain how basic Internet applications work.
• Explain how TCP/IP works.

Transversal skills

• Use both general and domain specific IT resources and tools
• Use a work methodology appropriate to the task.
• Demonstrate the capacity for critical thinking
• Demonstrate a capacity for creativity.

Teaching methods

• Lectures
• Reading assignments
• Homework problems
• Hands-on exercises

Expected student activities

The students are expected to:
• attend the lectures
• complete homework problems
• complete hands-on exercises
• study their notes and -- when needed -- complement by reading relevant book chapters

Assessment methods

• Quizzes
• Midterm exam
• Final exam

Supervision

<table>
<thead>
<tr>
<th>Resource</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office hours</td>
<td>Yes</td>
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<tr>
<td>Assistants</td>
<td>Yes</td>
</tr>
<tr>
<td>Forum</td>
<td>Yes</td>
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</tbody>
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Resources

Bibliography

Ressources en bibliothèque
• Computer Networking / Kurose

Websites
• https://sites.google.com/site/com208computernetworks/