<table>
<thead>
<tr>
<th><strong>Department</strong></th>
<th>07 Computer Science and Mathematics</th>
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<tbody>
<tr>
<td><strong>Course title</strong></td>
<td>Network Management</td>
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<tr>
<td><strong>Hours per week (SWS)</strong></td>
<td>4</td>
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<tr>
<td><strong>Number of ECTS credits</strong></td>
<td>5</td>
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**Course objective**

Learn the principles of computer network management techniques such as: Management Information Bases (MIB II, RMON1, RMON2, Private MIB), Network Management Protocols (SNMP1, SNMP2, SNMP3), Abstract Syntax Notation One (ASN.1), Network Security Management (Analysis of network attacks, Firewall, Intrusion Prevention)

Apply management techniques on various network configurations and network components based on exercises in the network management virtual laboratory

**Prerequisites**

Basic knowledge in computer networks or data communications

**Recommended reading**

4. Online tutorials, online exercises, and over 100 questionnaires with explained answers within the virtual laboratory on: TCP/IP Troubleshooting, Network Management, Routing Protocols, Router Configuration, Switching, Network Security Management (Firewall, VPN, Attacks) Developing Network Mgm. Appl. based on SNMP++ Library, SNMP-Java Library and MIB II

**Teaching methods**

Electronic media presentations, demos, case studies

**Assessment methods**

40% of the grade will be based on reports/questions on the results of exercises, project, 60% of the grade will be based on final exam questions

**Language of instruction**

English

**Name of lecturer**

Alexandru Soceanu

**Email**

Soceanu@cs.hm.edu

**Link**

http://w3-o.cs.hm.edu/~soceanu/
Course content


**Network Security**: Firewalls: Role, Architecture, Planning and Configuration, Case Study, VLANs, IP v6, Intrusion Detection/Prevention.


**Network Management Tools**: Network General Sniffer, Wireshark, HP-Open View, 3COM-Transcend, VLAN Manager, RMON-Tool Hifn, Firewall Checkpoint One, Intrusion Prevention System (McAfee)

**Online exercises within the virtual laboratory of vhb**: 1) Frame analyses based on Wireshark-Analyser, 2) Using a RMON-Tool based on Hifn Tool, 3) Using a Network Management Tool based on HP-Open View, 4) Configuration and setup Spanning Tree for Bridges, 5) Setup 3Com/Sonix ISDN Router, 6) Setup CISCO ISDN Router, 7) Setup CISCO Ethernet Router, 8) Setup a VLAN-Manager for a switch 3COM-CB 5000, 9) Setup Quality-of-Service (QoS) for CISCO-Routers, 10) Setup a Firewall System from Check Point One,