Course Purpose

The objective of the course is to give learners competencies in Network Management

Course Description
Overview of the issues of network management, Network administration: Use of passwords and access control mechanisms, Domain names and name services. Issues for Internet service providers (ISPs). Security issues and firewalls. Quality of service issues: performance and failure recovery in networks. Case studies on network management using an OS like Linux

Course objectives
At the end of the course, students should be able to:
- Explain the issues for network management arising from a range of security threats, including viruses, worms, Trojan horses, and denial-of-service attacks.
- Develop a strategy for ensuring appropriate levels of security in a system designed for a particular purpose.
- Implement a network firewall.
- Demonstrate skills for managing a network using appropriate software e.g. Linux

Course Content
1. Introduction/review: vulnerabilities and examples of known network attacks
2. Domain names and name services.
3. Exterior Gate way/path vector protocols
4. Access control mechanisms:
   - Rule based access control
   - Port based access control e.g IEEE 802.1x
   - Simple file permissions provided in the UNIX and Windows operating systems
   - Group Policy Objects provided in Windows network systems
   - Simple access lists used in many firewalls and routers.
4. Web and Network layer security
   - SSL / TLS
   - IPSec, ISAKMP / Oakley
   - Secure remote access: SSH
5. Intrusion detection systems
6. Quality of service issues in IP networks
7. Performance and failure recovery in networks.

Mode of Delivery:
- Lectures.
- Group discussions.
- Practicals

Course Assessment:

- Continuous Assessment   30 %
- End of Semester Examination.   70 %

Recommended Reference Material:

- Computer Networking Top Down approach 3rd edition By Jim kurose and Keith Ross
- Computer networking, Stanford H. Rowe, Marsha L. Schung
- Computer Networks 4th edition By Andrew S Tanenbaum
- Networks for computer scientists and engineers – Youlu Zheng / Shakil Akhtar

Course Instructor

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