BAKER COLLEGE
STUDENT LEARNING OUTCOMES

ITS 4150 Firewall Concepts
3 Semester Hours

Student Learning Outcomes & Enabling Objectives

1. Examine the basic components of network security.
   a. Define key terms.
   b. Explore TCP/IP stack & TCP/UDP protocol.
   c. Identify the need of a multi layered security approach.
   d. Discuss the use of MAC address filtering and the differences between unicast, broadcast, and multicast addresses.

2. Analyze basic components and functions of Firewalls.
   a. Identify the importance of personal firewalls.
   b. Identify the differences between stateless, proxy, content-aware, and stateful firewalls.
   c. Discuss the utilization of port forwarding and NAT.

3. Analyze the methods, goals, and implementation strategy of firewall rules used to protect a computer network.
   a. Define necessary incoming and outgoing traffic.
   b. Discuss methods to prevent unwanted traffic while allowing for external access.
   c. Discuss the use of IPTABLES and Access Control Lists (ACLS).
   d. Create firewall rules that reflect an organization's overall security approach.
   e. Determine how to design a network to improve the efficiency of firewall rules.

4. Explore remote access and remote management services.
   a. Define Virtual Private Networks (VPNs) and VPN protocols.
   b. Identify the use of VPNs to protect personal and private data.
   c. Setup encryption rules using SSL, PGP, and IPSec.
   d. Discuss contingency planning and disaster recovery and response planning.

5. Analyze the importance of centralized logging.
   a. Identify common problems with logging.
   b. Discuss the use of logs to identify security events.
   c. Evaluate suitable hardware and software for a firewall installation.
   d. Implement different firewall configurations.

Big Ideas and Essential Questions

Big Ideas

- Various uses and functionality of firewalls in network security.
- Multi layered security approach.

Essential Questions

1. What can firewalls do?
2. Can we safely use remote access to a network?

These SLOs are approved for experiential credit.

Effective: Fall 2017