ACADEMIC AFFAIRS

Course Number: PROG-416   Department: INFT

Course Title: Adv. Security Topics   Semester: Fall   Year: 2003

Course Objective	Competencies
1. To have students evaluate many different networks for design and security flaws. 2. To teach student security features of routers/switches. 3. To be able to evaluate server and network vulnerabilities. 4. Using design tools to document the network. 5. To analyze business needs and incorporate that into a secure and efficient network design and the infrastructure and server level. 6. To have the student assess a companies network needs in terms of routers/servers/media/protocols for optimal security and performance.	• Examining and understanding the clients existing network • Utilize tools to gather all pertinent network statistics using protocol analyzers • Documenting all specification of a network including: Network availability, performance, reliability, utilization, router statistics, potential bottlenecks and network optimization. • Plan new customer requirement based on manageability, application, and security req. • Topological design • Hierarchical analysis and design • Redundant and secure networks • Recommendation of hardware and channels for LAN • Layer 3 packet types and choices • Problem Solving for an Internetwork • Benefits of switching • Benefits of routing • Broadcast domains • Collision Domains • How to minimize broadcast domains

- How to minimize collisions domains
- The disadvantages of a "Flat Network"
- Campus MAN/LAN design & implementation
- Ethernet Design rules
- Propagation Delay
- Controlling the use of network media
- Recommending Hardware and media for the WAN
- WAN design for optimum utilization
- Determining the best WAN Technology based on usage
- Bandwidth Rate determination based on the needs of departments
- Remote access implementation for a particular situation
- Design a network-layer addressing and naming scheme/IP addressing
- Implementing suitable sub-netting plans
- Network address translation
- Distinguishing the different methods of routing protocols
- Designing network management procedures
- Proactive network management
- Network management specifications
- Network management procedures.