

# Course Introduction

## (1) Course Contents

- ❖ TCP/IP Protocols
  - ❖ Vulnerabilities in the TCP/IP protocols
    - Design vulnerabilities
    - Implementation vulnerabilities
    - Attacks
    - Countermeasures
  - ❖ Protection mechanisms
    - Firewalls
    - Intrusion detection systems (IDS)
    - Encryption, digital signature, and IPSec.
    - Authentications and Kerberos.
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## (2) Course Projects

- ❖ Systems and tools installation
  - VMware workstation
    - At least 512M memory
    - We need at least three machines
    - If you already have three machines, you don't need VMware except for the final project.
  - Fedora Linux (most recent version)
    - We run Linux as our virtual machine.
    - It is free.
    - You can use other operating systems too.
  - Minix 3: An instructional operating system.
  - Netwox toolbox
    - 200+ tools, open source, and work in Linux, MacOS, Solaris, Windows, etc.
    - Displaying network configuration/information.
    - Network sniffing tools
    - Packet spoofing tools (for ARP, IP, ICMP, TCP, etc.)
    - SYN flooding
    - TELNET, FTP, HTTP, DHCP, SNMP protocols.
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- ❖ Projects
  - **See the course web page**