Lectures for the course: Information and System Security (IT 60112)

Week 1

Lecture 1 – 03/01/2006
- Introduction to the course
- Evaluation Criteria Explained
- Attendance Requirement Stated
- Text Books and Research Materials to form part of the syllabus
- Class Test dates announced

Lecture 2 – 05/01/2006
- Computer Security Fundamentals – Confidentiality, Integrity and Availability
- Threats and Attacks
- Policy and Mechanism
- Secure, Broad and Precise Mechanisms

Week 2

Lecture 3 – 09/01/2006
- Introduction to Access Control Matrix

Lecture 4 – 10/01/2006
- Own, Control and Copy rights
- Transfer rights
- Access Control by Boolean Expression evaluation

Lecture 5 – 12/01/2006
- History of research in System Security
- Importance of Models in representing Protection States of a Systems
- HRU Model - Introduction

Week 3

Lecture 6 – 17/01/2006
- HRU Model State Transitions
- Safety in HRU Model
Lecture 7 – 17/01/2006 (afternoon)

• Take Grant Protection Model

Lecture 8 – 19/01/2006

• Bell La Padula Model

Week 4

Lecture 9 – 24/01/2006

• Bell La Padula Model (Completed)

Week 5

Lecture 10 – 30/01/2006

• Integrity Policies
• Low Water Mark Policy of Biba

Lecture 11 – 31/01/2006

• Class Test 1 was conducted

Lecture 12 – 02/02/2006

• Ring Policy of Biba
• Biba’s Strict Integrity Policy
• Class Test scripts were shown

Week 6

Lecture 13 – 06/02/2006

• Lipner’s Integrity Policy
• Introduction to Clark Wilson’s Policy

Lecture 14 – 07/02/2006

• Clark Wilson’s Policy
• Chinese Wall Policy

Week 7
Lecture 15 – 13/02/2006

- Authentication
- Components of an authentication system
- Types of attacks on a password based authentication system

Lecture 16 – 14/02/2006

- System generated Passwords
- User selected passwords
- Password checking
- Challenge-Response
- One-time Passwords - SKeys

Week 8

Mid Sem Exam

Week 9

Lecture 17 – 27/02/2006

- Introduction to Kerberos

Lecture 18 – 28/02/2006

- Kerberos Ver. 4
- Realms and Multiple Kerberos

Lecture 19 – 02/03/2006

- Secure System Design Principles

Week 10

Lecture 20 – 09/03/2006

- Introduction to Assurance
- Assurance at different levels

Lecture 21 – 09/03/2006 Evening

- Formal and Informal Verification
- Review
- Configuration Management
• Different Life Cycle Models and their impact on Assurance

Week 11
Lecture 22 – 14/03/2006
• Evaluating Systems
• TCSEC

Lecture 23 – 16/03/2006
• Overview of other Evaluation Standards
• ITSEC
• CC
• SSE-CMM

Lecture 23 – 16/03/2006 (Evening)
• Malicious Logic
• Trojan Horse
• Virus

Week 12
Lecture 24 – 20/03/2006
• Virus Prevention Methods
• Flow Metric

Lecture 25 – 21/03/2006
• Methods for Limiting Spread of Virus
• Worms, Bacteria, Logic Bomb

Lecture 26 – 23/03/2006
• Vulnerability Analysis – Introduction
• Levels of penetration studies
• Flaw hypothesis methodology

Week 13
Lecture 27 – 30/03/2006
• Penetration of a Burroughs System

Class Test 2 was held here
Week 14

Lecture 28 – 03/04/2006
- Class test 2 answer scripts were shown
- Social Engineering for penetration

Lecture 29 – 04/04/2006
- Auditing
- Components of an auditing system
- State based and Action based logging

Lecture 30 – 06/04/2006
- Logging Methods
- Log Sanitization
- Log Browsing

Week 15

No Class

Week 16

Lecture 31 – 17/04/2006
- No Class

Lecture 32 – 18/04/2006
- Intrusion Detection Systems
- Misuse Detection
- Anomaly Detection
- Base Rate Fallacy

Lecture 33 – 20/04/2006
- Summary and Feedback