Introduction to Cyber Security / Information Security

Syllabus for 'Introduction to Cyber Security / Information Security' program[*] for students of University of Pune is given below.

The program will be of 4 credits and it will be delivered in 60 clock hours[**].

*: Course material for this program will be developed by CINS

**: These clock hours also includes practical sessions and demonstrations wherever required.

SR. NO.	TOPIC	HOURS	MARKS
1	**Module 1: Pre-requisites in Information and Network Security**	**14**	**25**
	Chapter 1: Overview of Networking Concepts	3	
	Chapter 2: Information Security Concepts	3	
	Chapter 3: Security Threats and Vulnerabilities	5	
	Chapter 4: Cryptography / Encryption	3	
2	**Module 2: Security Management**	**13**	**25**
	Chapter I: Security Management Practices	7	
	Chapter 2: Security Laws and Standards	6	
3	**Module 3: Information and Network Security**	**13**	**25**
	Chapter 1: Access Control and Intrusion Detection	3	
	Chapter 2: Server Management and Firewalls	4	
	Chapter 3: Security for VPN and Next Generation Technologies	6	
4	**Module 4: System and Application Security**	**20**	**25**
	Chapter 1: Security Architectures and Models	5	
	Chapter 2: System Security	5	
	Chapter 3: OS Security	5	
	Chapter 4: Wireless Network and Security	5	

Detail Syllabus for Credit Course for University of Pune

Module 1: Pre-requisites in Information and Network Security

Chapter 1: Overview of Networking Concepts

1. Basics of Communication Systems
2. Transmission Media
3. Topology and Types of Networks
4. TCP/IP Protocol Stacks
5. Wireless Networks
6. The Internet

Chapter 2: Information Security Concepts

1. Information Security Overview: Background and Current Scenario
2. Types of Attacks
3. Goals for Security
4. E-commerce Security
5. Computer Forensics
6. Steganography

Chapter 3: Security Threats and Vulnerabilities

1. Overview of Security threats
2. Weak / Strong Passwords and Password Cracking
3. Insecure Network connections
4. Malicious Code
5. Programming Bugs

6. Cyber crime and Cyber terrorism
7. Information Warfare and Surveillance

Chapter 4: Cryptography / Encryption

1. Introduction to Cryptography / Encryption
2. Digital Signatures
3. Public Key infrastructure
4. Applications of Cryptography
5. Tools and techniques of Cryptography

Module 2: Security Management

Chapter I: Security Management Practices

1. Overview of Security Management
2. Information Classification Process
3. Security Policy
4. Risk Management
5. Security Procedures and Guidelines
6. Business Continuity and Disaster Recovery
7. Ethics and Best Practices

Chapter 2: Security Laws and Standards

1. Security Assurance
2. Security Laws
3. IPR

4. International Standards
5. Security Audit
6. SSE-CMM / COBIT etc

Module 3: Information and Network Security

Chapter 1: Access Control and Intrusion Detection

1. Overview of Identification and Authorization
2. Overview of IDS
3. Intrusion Detection Systems and Intrusion Prevention Systems

Chapter 2: Server Management and Firewalls

1. User Management
2. Overview of Firewalls
3. Types of Firewalls
4. DMZ and firewall features

Chapter 3: Security for VPN and Next Generation Technologies

1. VPN Security
2. Security in Multimedia Networks
3. Various Computing Platforms: HPC, Cluster and Computing Grids
4. Virtualization and Cloud Technology and Security

Module 4: System and Application Security

Chapter 1: Security Architectures and Models

1. Designing Secure Operating Systems
2. Controls to enforce security services
3. Information Security Models

Chapter 2: System Security

1. Desktop Security
2. email security: PGP and SMIME
3. Web Security: web authentication, SSL and SET
4. Database Security

Chapter 3: OS Security

1. OS Security Vulnerabilities, updates and patches
2. OS integrity checks
3. Anti-virus software
4. Configuring the OS for security
5. OS Security Vulnerabilities, updates and patches

Chapter 4: Wireless Networks and Security

1. Components of wireless networks
2. Security issues in wireless