

CYBER SECURITY (ECS-205/206)

Teacher Name:

Ms. Medha Trivedi

Course Structure

Sr. No.	Course Code	Course Name	Credits	Details of Sessional Marks				ESM	Total Marks
				CT	TA	Lab	Total		
1.	ECS-206	Cyber Security	0 (2-0-0)	30	20	-	50	50	100

Prerequisite:

Course Content:

Unit-1:

Introduction to information systems, Types of information systems, Development of Information systems, Introduction to information security, Need for Information security, Threats of Information Systems, Information Assurance, Cyber Security and Security Risk Analysis.

Unit-2

Application security (Database, E-mail and Internet), Data Security Considerations - Backups, Archival Storage and Disposal of Data, Security Technology - Firewall and VPNs, Intrusion Detection, Access Control, Security Threats - Viruses, Worms, Trojan Horse, Bombs, Trapdoors, Spoofs, E-mail viruses, Macro viruses, Malicious Software, Network and Denial of Services Attack, Security Threats to E-Commerce – Electronic Payment System, e-Cash, Credit/Debit Cards, Digital Signature, public Key Cryptography.

Unit-3

Developing Secure Information Systems, Application Development Security, Information Security Governance & Risk Management, Security Architecture & Design, Security Issues in Hardware, Data Storage & Downloadable devices, Physical Security of IT Assets, Access Control, CCTV and intrusion Detection Systems, Backup Security Measures.

Unit-4

Security Policies, why Policies should be developed, WWW Policies, Email Security Policies, Policy Review Process- Corporate policies- Sample Security Policies, Publishing and Notification requirement of the Policies. Information Security Standards- ISO, IT Act, Copyright Act, Patent Law, IPR. Cyber Laws in India: IT Act 2000 Provisions, Intellectual Property Law: Copy Right Law, Software License, Semiconductor Law and Pattern Law.

Text and Reference Books:

1. Charles, P., and Shari Lawrence Pfleeger, "*Analyzing Computer Security*". Pearson Education India.
2. V.K. Pachghare, "*Cryptography and information security*", PHI Learning Pvt. Ltd., Delhi India.
3. Dr Surya Prakash Tripathi, Ritendra Goyal, and Praveen Kumar Shukla, "Introduction to Information Security and Cyber Law", Willey Dreamtech Press.
4. Schou, Shoemaker, "Information Assurance for the Enterprise", Tata McGraw Hill.
5. Chander Harish, "Cyber Laws and their Protection", PHI Learning Private Limited, Delhi, India.

Course Outcomes:

1. Understand information, information systems, information security, Cyber Security and Security Risk Analysis. (Understand)
2. Understand and apply application security, data security, security technology, security threats from malicious software. (Understand, Apply)
3. Understand the concepts of security threats to e-commerce applications such as electronic payment system, e-Cash, Credit/Debit Cards etc. (Understand)
4. Understand and apply Information Security Governance & Risk Management, Security of IT Assets and Intrusion Detection Systems. (Understand, Apply)
5. Understand various types of Security Policies, Cyber Ethics, IT Act, IPR and Cyber Laws in India. (Understand)

Lecture Plan for Cyber Security (ECS-205/206)

UNIT	TOPICS	NUMBER OF LECTURES
1	Introduction to Information System, Types of information Systems, Development of Information Systems	1
	Introduction to information security, Need for Information security, Threats to Information Systems	1
	Information Assurance, Cyber Security, and Security Risk Analysis	1
2	Application security (Database, E-mail and Internet), Data Security Considerations-Backups, Archival Storage and Disposal of Data	2
	Security Technology-Firewall and VPNs	2
	Intrusion Detection, Access Control	2
	Security Threats -Viruses, Worms, Trojan Horse. Bombs, Trapdoors, Spoofs, Email viruses, Macro viruses, Malicious Software	1
	Network and Denial of Services Attack	1
	Security Threats to E-Commerce - Electronic Payment System, e- Cash, Credit/Debit Cards	1
	Digital Signature, Public Key Cryptography	1
3	Developing Secure Information Systems, Application Development Security, Information Security Governance & Risk Management, Security Architecture & Design	2
	Security Issues in Hardware, Data Storage & Downloadable Devices	1
	Security of IT Assets, Access Control, CCTV and intrusion Detection Systems, Backup Security Measures.	1
4	Security Policies, Why Policies should be developed, WWW policies, Email Security Policies	1
	Policy Review Process-Corporate Policies-Sample Security Policies, Publishing and Notification Requirement of the Policies	1
	Information Security Standards-ISO, IT Act, Copyright Act, Patent Law, IPR, Cyber Laws in India	1
	IT Act 2000 Provisions, Intellectual Property Law: Copy Right Law, Software License, Semiconductor Law and Patent Law	2
Total number of Lectures		22

Lecture Notes

[Unit 1](#)

[Unit 2](#)

[Unit 3 & 4](#)

Resource Links:

<https://www.guru99.com/mis-types-information-system.html#1>

http://www.chris-kimble.com/Courses/World_Med_MBA/Types-of-Information-System.html

https://en.m.wikipedia.org/wiki/Information_security

<https://frsecure.com/blog/the-5-ws-of-information-security/>

<https://ashwiniscl.wordpress.com/information-system-threats/>

<https://www.geeksforgeeks.org/threats-to-information-security/>

<https://www.guru99.com/potential-security-threats-to-your-computer-systems.html>

<https://www.ukessays.com/essays/information-technology/the-threats-of-information-system-security-information-technology-essay.php>

<https://www.techopedia.com/definition/5/information-assurance-ia>

https://en.m.wikipedia.org/wiki/Information_assurance

<https://www.javatpoint.com/cyber-security-risk-analysis>

<https://www.javatpoint.com/data-security-consideration>

<https://www.javatpoint.com/cyber-security-technology>

<https://www.javatpoint.com/security-threat-to-e-commerce>

<https://www.javatpoint.com/cyber-security-digital-signature>

<https://www.javatpoint.com/cyber-security-policies>

<https://www.javatpoint.com/cyber-security-standards>

<https://en.m.wikipedia.org/wiki/E-commerce>

<https://securionpay.com/blog/e-payment-system/>

<https://www.techwalla.com/articles/types-of-ecommerce-payment-systems>

<https://searchsecurity.techtarget.com/definition/digital-signature>

<https://searchsecurity.techtarget.com/definition/digital-signature>

<https://www.globalsign.com/en/ssl-information-center/what-is-public-key-cryptography>

Assignments

Assignment 1

Due Date: 25th January 2019

Q1. What is information system? Explain its types.

Q2. Why do we need information security?

Q3. Write short note on:

- i. Security Risk Analysis
- ii. Information Assurance
- iii. Cyber Security

Q4. What is information assurance? Explain the three dimensional Information Assurance Model with help of suitable diagram.

Assignment 2

Due Date: 20th February 2019

Q1. Differentiate between public key cryptography and private key cryptography.

Q2. What do you mean by firewalls? Explain its types.

Q3. What are data security considerations? Explain in this reference data backup security, data archival security and data disposal considerations.

Q4. Explain digital signatures. How do they differ from e-signature?

Q5. What is denial of service attack?

Assignment 3

Due Date: 25th March 2019

Q1. Write a short note on Information Security Governance.

Q2. What is intrusion detection system? Describe the approaches used for intrusion detection in a system.

Q3. What is closed circuit television surveillance (CCTV)?

Q4. What is security architecture of information system? Explain the secure system design of information system.

Q5. What is the need of Risk Management? What are the processes involved in managing the risks during the development of secure information system?

Assignment 4

Due Date: 20th April 2019

Q1. What is the need of WWW policies?

Q2. Explain policy review process.

Q3. What is Intellectual Property Law?

Q4. What do you understand by e-mail securities policies?

Q5. Explain the following in detail:

- i. Software License
- ii. Semiconductor Law
- iii. Cyber Laws in India