Daffodil International University

Department of Computer Science and Engineering (CSE)

Course Outline

Course Code:	CSE423		
Course Title:	Information Security		
Program:	B.Sc. in CSE		
Faculty:	Faculty of Science and Information Technology (FSIT)		
Semester:	Fall	**Year:**	2022
Credit:	3	**Contact Hour:**	3
Course Level:	Level-4, Term-2	**Prerequisite:**	CSE313
Course Category:	Core Engineering		
Instructor Name:	Lamia Rukhsara		
Designation:	Lecturer		
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1. Course Rationale

Course Description/Rationale:
Information security — or InfoSec — is the protection of information by people and organizations in order to keep information safe for themselves, their company, and their clients. Every organization needs protection against cyber-attacks and security threats. Cybercrime and malware are constant threats to anyone with an Internet presence, and data breaches are time-consuming and expensive. The goal of IT security course is to give an overview on how to protect these assets, devices and services from being disrupted, stolen or exploited by unauthorized users, otherwise known as threat actors.

1.1. Course Objective:

-To learn basics of information security, in both management aspect and technical aspect.
-To learn various types of security threats and attacks
-To learn basics of Security risks and Management process
-To learn ways to manage, detect and response to incidents and attacks.
-To learn the benefits of AI and ML in the field of Information Security
-To learn basics of application of cryptography which are one of the key technology to implement security functions.
-To learn the Legal and Ethical issues in information security

1.2. Course Outcomes (CO's)

CL01	Interpret the components, tools and techniques of Information Security systems
CL02	Analyze various Information security threats, risks and propose controls for it.
CL03	Explain the Ethical issues and Laws in the field of Information Security

1.4. CO-PO Mapping

	PLO-1	PLO-2	PLO-3	PLO-4	PLO-5	PLO-6	PLO-7	PLO-8	PLO-9	PLO-10	PLO-11	PLO-12
CL0-1	✓											
CL0- 2		✓										
CL0-3								✓				

1.5. CO Assessment Scheme

ssessment Task	**CO's**					**Mark (Total=100)**
	CO1	**CO2**	**CO3**	**CO4**	**CO5**	
Attendance	--	--	--	--	--	7
Class Test (CT1, CT2, CT3)	--	--	--	--	--	15
Assignment	--	--	--	--	--	5
Presentation	--	--	--	--	--	8
Midterm Examination						25
Semester Final Examination						40
Total Mark						100

2. Strategies and approaches to learning

2.1. Teaching and Learning Activities (TLA)

TLA1 .	Lectures twice a week using multimedia of different topics.
TLA2	Active discussion in class regarding Information Security components, tools and techniques
TLA3	Group discussion and presentation regarding diverse problems and corresponding lectures.
TLA4	Evaluation of class performances to reach each student in a class for every topic.

3. Course Schedule and Structure

3.1. Textbook

Textbook/Recommended Readings'

1. Principles of Information Security
   -Michael E. Whitman, Herbert J. Mattord, Fourth Edition
2. Ethical Hacking and Countermeasures, Version11
   -EC Council

3.2. Reference Book

1. Introduction to Cyber Security
   -William Stallings, 4th Edition
2. Information & Communication Technology (ICT)
   Risk Management Framework

3.3. Course Plan/Lesson Plan

Week	Lesson.	Topic	Teaching and Learning Activities (TLAi)	Textbook & Video Reference	Related CO's
1	Les. 1	Information Security and It's Elements: Introduction of information security Principles of Security (CIA Triad) Five major Elements (Confidentiality, Integrity, Availability, Authenticity and Non-Repudiation)	TLA1	Michael E. Whitman, Herbert J. Mattord, Fourth Edition ,EC Council	CO1
	Les. 2	Information Security and It's Elements: What is 'Attack' in information security Classification of Attack (Active, Passive, Close-in Attack, Insider Attack and Distribution Attacks) Information Warfare	TLA1, TLA3	Michael E. Whitman, Herbert J. Mattord, Fourth Edition ,EC Council	CO1
2	Les. 3	Ethical Hacking and Concept : What and who is Hacker Hacker Classes (White, Black Gray) Cyber Attack Difference between Cyber security and Information Security	TLA1, TLA2, TLA3	EC Council	CO1
	Les. 4	Ethical Hacking and Concept : Cyber Attack Difference between Cyber security and Information Security	TLA1, TLA4	EC Council	CO1
		(Class Test – 1, Assignment – 1)			

Week	Lesson.	Topic	Teaching and Learning Activities (TLAi)	Textbook & Video Reference	Related CO's
3	Les. 5	Security Risk Management: Risk frequency based on Risk Scenarios on assets if vulnerability Risk Analysis Impact Scale Risk Rating Table Risk Determination Risk Rating Matrix and calculation	TLA1, TLA2	Information & Communication Technology (ICT) Risk Management Framework, EC Council	CO1
	Les. 6	Security Risk Management: Classification of Risk Triggers Business Impact Analysis (BIA) Estimated Downtime	TLA1, TLA4	Information & Communication Technology (ICT), EC Council	CO1
4	Les. 7	Security Risk Management: Information Assurance What is Risk, Purpose, Risk Level Identification of Assets	TLA1, TLA2, TLA3	Information & Communication Technology (ICT Risk Management Framework, EC Council	CO2
	Les. 8	Security Risk Management: Identification of Risk-Scenarios Relationship between Vulnerabilities and Risk Scenarios based on Assets	TLA1, TLA4	Information & Communication Technology (ICT Risk Management Framework, EC Council	CO2
5		(Class Test – 2)			
	Les. 9	Incident Management and AI and ML in Information Security: What is Incident Incident Handling and Response Steps of IH&R Process	TLA1, TLA3	Michael E. Whitman, Herbert J. Mattord, Fourth Edition EC Council	CO1
	Les. 10	Incident Management and AI and ML in Information Security : Different between AL and ML Use of AI and ML in Information Security	TLA1, TLA2	Michael E. Whitman, Herbert J. Mattord, Fourth Edition EC Council	CO1

Week	Lesson.	Topic	Teaching and Learning Activities (TLAi)	Textbook & Video Reference	Related CO's
6	Les. 10	System Hacking and Security: What is Footprinting Footprinting Concept (Page: 95) Footprinting Types What is Network Scanning Network Scanning Concept (Page: 238)	TLA1, TLA2	Michael E. Whitman, Herbert J. Mattord, Fourth Edition EC Council	CO1
	Les. 10	System Hacking and Security: Reconnaissance What is computer Port? Port Scanning Concept (Page: 277)	TLA1, TLA2	Michael E. Whitman, Herbert J. Mattord, Fourth Edition EC Council	CO1
7	Les. 11	System Hacking and Security : Gaining Access Maintaining Access Clearing Tracks	TLA1, TLA2	Michael E. Whitman, Herbert J. Mattord, Fourth Edition EC Council	CO1
	Les. 12	Web Application Hacking and Security: Web Application Concepts Web Application Threats OWASP Top 10 Web Application Vulnerability	TLA2, TLA3	Michael E. Whitman, Herbert J. Mattord, Fourth Edition EC Council	CO1
8	Les. 13	Web Application Hacking and Security: How Websites work	TLA1, TLA2, TLA3	EC Council, Wikipedia	CO1
	Les. 14	Web Application Hacking and Security: Secure SDLC	TLA2, TLA4	EC Council, Wikipedia	CO1
9	Les. 15	Introduction to Encryption	TLA2, TLA3	EC Council	CO2
	Les. 16	Introduction to Encryption: Cryptography Concepts Types of Cryptography	TLA1, TLA2	EC Council	CO2
10	Les. 17	Introduction to Encryption :Encryption Algorithm, DES, AES	TLA1, TLA3	EC Council	CO2

Week	Lesson.	Topic	Teaching and Learning Activities (TLAi)	Textbook & Video Reference	Related CO's
	Les. 18	Introduction to Encryption :Data Coloring	TLA1, TLA3	EC Council	CO2
11		(Class Test-3, Assignment – 2)			
	Les. 19	Cyber Law: Concept, Security Laws of Different Countries	TLA1, TLA3	Michael E. Whitman, Herbert J. Mattord, Fourth Edition ,EC Council	CO3
	Les. 20	Cyber Law: Cyber Law in Bangladesh	TLA2, TLA3	Michael E. Whitman, Herbert J. Mattord, Fourth Edition ,EC Council	CO3
12	Les. 21	Cyber Law in Bangladesh: Digital Security Act	TLA1, TLA3	Michael E. Whitman, Herbert J. Mattord, Fourth Edition ,EC Council	CO3
	Les. 22	Hands-on: Malware Generating	TLA1, TLA2, TLA3	EC Council	CO2
13	Les. 23	Optional Hands-on: Dynamic Analysis Basic Reverse Engineering	TLA1, TLA3	EC Council	CO2
	Les. 24	(Class Test-4, Assignment – 3)	TLA1, TLA2, TLA3	EC Council	CO2
14	Les. 24	Basic OS Auditing Hands-on: Static Analysis	TLA1, TLA2, TLA3	EC Council	CO2
15	Presentation		TLA3	N/A	N/A
16	Course Topic Revision		TLA1, TLA2, TLA3	Michael E. Whitman, Herbert J. Mattord, Fourth Edition, ,EC Council	CO1, CO2, CO3

4. Assessment Methods

4.1. Grading System

Numerical Grade	Letter Grade	Grade Point
80-100	A+	4.00
75-79	A	3.75
70-74	A-	3.50
65-69	B+	3.25
60-64	B	3.00
55-59	B-	2.75
50-54	C+	2.50
45-49	C	2.25
40-44	D	2.00
Less than 40	F	0.00

Criteria	Marks Distribution (Theory)
Class Attendance	7%
Assignment	5%
Presentation	8%
Class Test	15%
Mid-Term	25%
Semester Final	40%
TOTAL	**100%**

Additional Support for Students

- Student Portal:

http://studentportal.diu.edu.bd/

- Academic Guidelines

https://daffodilvarsity.edu.bd/article/academic-guidelines

- Rules and Regulations of DIU

https://daffodilvarsity.edu.bd/article/rules-and-regulation

- Career Development Center:

https://cdc.daffodilvarsity.edu.bd/

- For general queries:

http://daffodilvarsity.edu.bd/

6. Appendix-I

Consider (a) - (l) as PO1 - PO12 respectively

https://drive.google.com/file/d/16Bhc2bdaYo3v__FvGrfUD4tjuT0kfT6c/view?usp=sharing