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NPTEL (https://swayam.gov.in/explorer?ncCode=NPTEL) » Information Security - 5 - Secure Systems Engineering (course)



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Course outline

About NPTEL

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How does an **NPTEL** online course work? ()

Week 1 ()

Week 2 ()

Week 3 ()

Week 8 : Assignment 8

The due date for submitting this assignment has passed.

Due on 2025-03-19, 23:59 IST.

1 point

Assignment submitted on 2025-03-16, 11:38 IST

19.11.19.11	···	-	٠٠,	

- 1) Which of the following best describes the main purpose of FANCI?

 - To detect software vulnerabilities
 - To identify stealthy malicious logic in hardware designs
 - To optimize power consumption in ICs
 - To improve circuit performance

Yes, the answer is correct.

Score: 1

Accepted Answers:

To identify stealthy malicious logic in hardware designs

- 2) What is a key characteristic of Hardware Trojans that FANCI exploits for detection? 1 point
 - High power consumption
 - Complex logic gates
 - Nearly-unused circuit elements
 - Frequent state transitions

Yes, the answer is correct.

Score: 1

Accepted Answers:

Nearly-unused circuit elements

Week 4 ()	3) In the context of Hardware Trojan prevention, what does "Split Manufacturing for Trust" primarily aim to achieve?	1 point
Week 5 ()	Divide the manufacturing process among multiple vendors	
Mack C ()	Separate the design and fabrication processes	
Week 6 ()	Split the IC into multiple smaller chips	
Week 7 ()	Distribute the testing phase across different facilities	
Week 8 ()	No, the answer is incorrect. Score: 0	
O Dawar Analysis	Accepted Answers:	
Power Analysis Attacks (unit?	Separate the design and fabrication processes	
unit=80&lesso n=81)	4) Which of the following is NOT a common method for Hardware Trojan detection in	1 point
·	post-silicon stages?	•
Hardware	Ontical data ation	
Trojans (unit? unit=80&lesso	Optical detection	
n=82)	Control of the street of the s	
O FANCI :	Side-channel signal analysis	
Identification of	Code review	
Stealthy	Yes, the answer is correct. Score: 1	
Malicious	Accepted Answers:	
Logic (unit? unit=80&lesso	Code review	
n=83)		
·	5) What is a primary challenge in using power analysis attacks to detect Hardware	1 point
DetectingHardware	Trojans?	
Trojans in ICs	Power consumption is too low to measure accurately	
(unit?	Trojans may consume very little additional power Trojans may consume very little additional power	
unit=80&lesso		
n=84)	Power analysis requires expensive equipment	
Protecting	Power consumption is not related to circuit behavior	
against Hardware	Yes, the answer is correct. Score: 1	
Trojans (unit?	Accepted Answers:	
unit=80&lesso	Trojans may consume very little additional power	
n=85)		
Side Channel	6) Which of the following best describes a "trigger" in the context of Hardware Trojans	?1 point
Analysis (unit? unit=80&lesso	A mechanism to activate the Trojan's payload	
n=86)	A tool used to detect Trojans	
	A type of logic gate used in Trojan circuits	
Fault Attacks on AES (unit?	A method to prevent Trojan insertion	
unit=80&lesso	Yes, the answer is correct.	
n=87)	Score: 1	
O Demo: Cache- timing based	Accepted Answers: A mechanism to activate the Trojan's payload	

Covert
Channel - Part
1 (unit?
unit=80&lesso
n=88)

Demo: Cachetiming based
Covert
Channel - Part

Demo: Cache timing attack on T-table implementatio n of AES (unit? unit=80&lesso n=90)

2 (unit? unit=80&lesso

n=89)

Week 8
Feedback
Form:
Information
Security - 5 Secure
Systems
Engineering
(unit?
unit=80&lesso
n=91)

Quiz: Week 8 : Assignment 8 (assessment? name=152)

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	S algorithm, which type of the sken the encryption?	ault attack aims to reduce the number of	1 point				
○ Bit flip	attack						
Clock	glitch attack						
○ Voltage	e spike attack						
○ Electro	omagnetic pulse attack						
Yes, the an Score: 1	swer is correct.						
Accepted A Clock glitch							
		nethods can detect Hardware Trojans by elay, energy consumption, and electromagnetic	1 point				
True							
O False							
Yes, the an Score: 1	swer is correct.						
Accepted A	answers:						
True							
9) FANCI re True False	equires complete test suite c	coverage to operate without false negatives.	1 point				
Yes, the an	nswer is correct.						
Score: 1 Accepted A	inewere.						
False	mawers.						
10) Match th	ne protection/detection techn	iques with their corresponding descriptions:	1 point				
anomalies	1. Locking mechanism	A. Analyzing electromagnetic activity t	o detect				
	2. Obfuscation	B. Adding redundant circuits to mask the or	iginal				
design							
	3. Reverse engineering	C. Implementing a key-based activation	n				
system for the	e IC 4. EM side-channel	D. Extracting the circuit design from the phy	veical				
chip	4. LIVI SIGC-CHAINICI	b. Extracting the circuit design from the phy	Joan				
	D 0 D 4 A						
© 1:C 2:B 3:D 4:A							
○ 1:B 2:C 3:D 4:A ○ 1:C 2:A 3:B 4:D							
	C 3:A 4:D						
U 1.D 2.	O O./ \ T.D						

Yes, the answer is correct. Score: 1

Accepted Answers:

1:C 2:B 3:D 4:A