

## NPTEL Video Lecture Topic List - Created by Linuxpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Information Security 5 - Secure Systems Engineering

Subject Co-ordinator - Prof. Chester Rebeiro

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Secure Systems Engineering  
Lecture 2 - Program Binaries  
Lecture 3 - Buffer Overflows in the Stack  
Lecture 4 - Buffer Overflows  
Lecture 5 - Gdb - Demo  
Lecture 6 - Skip instruction - Demo  
Lecture 7 - Buffer Overflow - Demo  
Lecture 8 - Buffer Overflow (create a shell) - Demo  
Lecture 9 - Preventing buffer overflows with canaries and W^X  
Lecture 10 - Return-to-libc attack  
Lecture 11 - ROP Attacks  
Lecture 12 - Demonstration of Canaries, W^X, and ASLR to prevent Buffer Overflow Attacks  
Lecture 13 - Demonstration of a Return-to-Libc Attack  
Lecture 14 - Demonstration of a Return Oriented Programming (ROP) Attack  
Lecture 15 - ASLR - Part 1  
Lecture 16 - ASLR - Part 2  
Lecture 17 - Buffer overreads  
Lecture 18 - Demonstration of Load Time Relocation  
Lecture 19 - Demonstration of Position Independent Code  
Lecture 20 - PLT Demonstration  
Lecture 21 - Format string vulnerabilities  
Lecture 22 - Integer Vulnerabilities  
Lecture 23 - Heap  
Lecture 24 - Heap exploits  
Lecture 25 - Demo of Integer Vulnerabilities - I  
Lecture 26 - Demo of Integer Vulnerabilities - II  
Lecture 27 - Demo of Format String Vulnerabilities  
Lecture 28 - Access Control  
Lecture 29 - Access control in linux

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Lecture 30 - Mandatory access Control  
Lecture 31 - Confinement in Applications  
Lecture 32 - Software fault isolation  
Lecture 33 - Trusted Execution Environments  
Lecture 34 - ARM Trustzone  
Lecture 35 - SGX - Part 1  
Lecture 36 - SGX - Part 2  
Lecture 37 - PUF - Part 1  
Lecture 38 - PUF - Part 2  
Lecture 39 - PUF - Part 3  
Lecture 40 - Covert Channels  
Lecture 41 - Flush+Reload Attacks  
Lecture 42 - Prime+Probe  
Lecture 43 - Meltdown  
Lecture 44 - Spectre Variant - 1  
Lecture 45 - Spectre variant - 2  
Lecture 46 - rowhammer  
Lecture 47 - Heap demo - 1  
Lecture 48 - Heap demo - 2  
Lecture 49 - Heap demo - 3  
Lecture 50 - PowerAnalysisAttacks  
Lecture 51 - Hardware Trojans  
Lecture 52 - FANCI  
Lecture 53 - Detecting Hardware Trojans in ICs  
Lecture 54 - Protecting against Hardware Trojans  
Lecture 55 - Side Channel Analysis  
Lecture 56 - Fault Attacks on AES  
Lecture 57 - Demo  
Lecture 58 - Demo  
Lecture 59 - Demo