

Dr. C. S Panda
Head
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Letter No. 580 /CSA

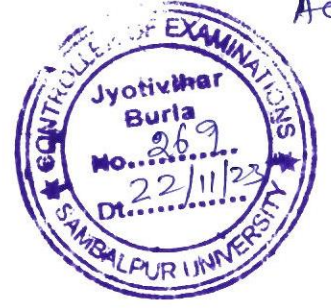
Dt. 20.11.23

To,

The Controller of Examinations,
Sambalpur University

Sub: Submission of alternative course to MOOC course

Ref: No.6043/Acd-I Dated,18.10.2023



Sir,

With reference to the subject cited above I am submitting herewith the syllabus of alternative course to MOOC course of Computer Science and Applications for necessary action at your end.

Yours Sincerely,

A handwritten signature in blue ink, appearing to be 'C. S. Panda'.

Head, P.G. Dept. of CSA

Head
Dept. of Comp. Sc. & Applications
Sambalpur University

Computer Science and Applications
Alternative to MOOC Course
Subject Name: Ethical Hacking
No. of Credits - 3

Unit-I

Introduction to ethical hacking. Fundamentals of computer networking. TCP/IP protocol stack. IP addressing and routing. TCP and UDP. IP subnets. Routing protocols. Installation of attacker and victim system. Information gathering, whois, host, dig, dnsenum, and NMAP tool. Vulnerability scanning using NMAP and Nessus. Creating a secure hacking environment. System Hacking: password cracking, privilege escalation, application execution. Malware and Virus. ARP spoofing and MAC attack.

Unit-II

Vulnerability scanning using NMAP and Nessus. Creating a secure hacking environment. System Hacking: password cracking, privilege escalation, application execution. Malware and Virus. ARP spoofing and MAC attack. Introduction to cryptography, private-key encryption, and public-key encryption. Cryptographic hash functions, digital signature, and certificate applications. Steganography, biometric authentication, network-based attacks, DNS, and Email security.

Unit-III

Packet sniffing using Wireshark and Burpsuite, password attack using Burp Suite. Social engineering attacks and Denial of service attacks. Elements of hardware security: side-channel attacks, physical inclinable functions, hardware trojans. Different types of attacks using the Metasploit framework: password cracking, privilege escalation, remote code execution, etc. Attack on web servers: password attack. SQL injection, cross-site scripting.

Reference Books

1. "Hacking: The Art of Exploitation" by Jon Erickson, 2nd Edition, No Starch Press
2. "The Basics of Hacking and Penetration Testing" by Patrick Engebretson, 2nd Edition, Syngress
3. "The Hacker Playbook 2" by Peter Kim, 1st Edition, Independently Published
4. "Hacking Exposed 7: Network security secrets and solutions" by MCCLURE, 7th Edition, MC-Grawhill Education India ltd.
5. "The Grey Hat Hacking: The Ethical hackers handbook" by Allen Harper, 3rd Edition, Tata MC-Grawhill Education Ltd.