



GUJARAT TECHNOLOGICAL UNIVERSITY

Cyber Security

Internship Title:	2 weeks UG Internship on Cyber Security
Duration [contact hours]:	02 weeks [05 Days/week, Min. 30 hours]
Mode:	Offline
Per Student Fee:	Rs 2360/-[Course fee Rs. 2000 + Rs.360(18% GST)]
Max batch size:	30 students.

Rationale:

- The course provide an insight of cyber security and concepts.
- The course focus on to gain the hands on about the cyber security sub domains.

Course Content:

Module	Content	No of Hours	Faculty/Instructor
1.	Introduction: Basics of Cyber Security fundamentals, Advanced tools used in committing cyber-crime, IT Act 2000,Case study- IP Tracing, Introduction to virtual machines used for pentesting, Different OS for cyber security.	3	Day 1: Prof. S D Panchal Director & Professor and Prof. Deepak Upadhyay GTU-GSET
	Lab Setup for Penetration Testing: Set-up of kali Linux, virtual box, Vulnerable OS, Advance Hardware for Cyber Crime-Raspberry Pi, Rubber Ducky, Information gathering tools.	3	Day 2: Prof. Deepak Upadhyay Assistant Professor, GTU-GSET.
2.	Incident Handling and Response: Cert-In Incident report form, Case study for high profile attacks, Plan for incident response, Identify threats using host, network, and log analysis, Introduction to Malware	3	Day 3: Industry Expert
	Malware Analysis: Hands on testing a malware, Malware creation and dynamic analysis, Tools for identification of malicious process for ransomware, Advance IP Scanner, Nmap	3	Day 4: Prof. Seema Joshi Assistant Professor, GTU-GSET.
3.	VAPT and Web Application Security: OWASP Top 10, Webserver attack and Defence with Secure web configurations and secure coding, types of web attacks, Website defacement, case study for server hacking, Social Engineering, Phishing	3	Day 5: Industry Expert



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	Advance Techniques and tools for penetration testing: Burp suite, Tools for website information gathering and Website log analysis, Password cracking techniques, tools, and countermeasures.	3	Day 6: Prof. Deepak Upadhyay Assistant Professor, GTU-GSET.
4.	Basics of Digital Forensics Digital Security and Cryptography, Substitution and Transposition Techniques, Cryptographic Hash functions, Digital Signature, Digital Certificates, Steganography and application.	3	Day 7: Prof. P. S. Mann Associate Professor, GTU-GSET.
	Live forensics and Investigation Live Forensics, Ram Capture tools, Live ram capture, mobile forensics, Different packet capture tools, Social Engineering tools, Analysis of Dark web forums and leaked data, tools for VPN identification.	3	Day 8: Prof. Deepak Upadhyay Assistant Professor, GTU-GSET.
5.	Introduction to Security Operational Center: Splunk, IBM Security QRadar, L1-L2-L3 SOC Analyst, Linux Server, Windows server IIS, Active Directory, Server log analysis, Attacks on the server, VPS	3	Day 9: Industry Expert
	Capstone project: POC for Network penetration testing, POC of VAPT of website using Burpsuite, CERT-in report for attack.	3	Day 10: Prof. Deepak Upadhyay Assistant Professor GTU-GSET

Learning Outcome:

After completion of the Internship, Students will be able to:

No	Course Outcomes	RBT Level*
01	Basic understanding of the cyber security terminology and attacks.	UN
02	Identification of vulnerability in the Web and Database Application.	UN
03	Apply skills for the reverse engineering of android applications and malware.	AP
04	Analyzing the teaming concept for the penetration testing of the system and network.	AN
05	Create a capstone project for the security problems in system and network.	EL

*RM: Remember, UN: Understand, AP: Apply, AN: Analyze, EL: Evaluate, CR: Create.