

# GUJARAT TECHNOLOGICAL UNIVERSITY

**Subject Name: Ethical Hacking & Cyber Laws**

**Subject Code: 3725106**

**Semester: II**

**Type of course:** M.E. Computer Engineering (IT systems and Network Security)

**Prerequisite:** Sound understanding of Operating System and Networking Concepts

**Rationale:** NA

**Teaching and Examination Scheme:**

Teaching Scheme			Credits C	Examination Marks				Total Marks
L	T	P		Theory Marks		Practical Marks		
				ESE (E)	PA (M)	ESE (V)	PA (I)	
3	2#	0	4	70	30	30	20	150

L- Lectures; T- Tutorial/Teacher Guided Student Activity; P- Practical; C- Credit; ESE- End Semester Examination; PA- Progressive Assessment;

**Content:**

Sr. No.	Content	Total Hrs	% Weightage
1	The Business Aspects of Penetration Testing	1	2
2	The Technical Foundations of Hacking	1	2
3	Foot printing and scanning Enumeration and Step-by-Step System Hacking	1	2
4	The Business Aspects of Penetration Testing	1	2
5	Automated Security Assessment Tools	1	2
6	Trojans and Backdoors, Sniffers	1	2
7	session Hijacking and Denial of Service	1	2
8	Web Server Hacking	1	2
9	Web application Vulnerabilities and Database Attacks	1	2
10	Wireless Technologies, Security and Attacks	1	2
11	IDS	1	2
12	Honeypots and Firewalls	1	2
13	Buffer Overflow	1	2
14	Cryptographic Attacks and Defenses	1	2
15	Social Engineering and Physical Security	1	2
16	Understanding Copy Right in Information Technology		2
17	Understanding the technology of Software softwarecopyright vs Patent debate Authorship	1	2
18	Assignment issues Commissioned work	1	2
19	Work for hire Idea/Expression dichotomy	1	2
20	Copy right in internet	1	2
21	Legal Issues in internet and Software Copyright Jurisdiction Issues	1	2
22	Copyright Infringe Remedies of Infringement Multimedia	1	2

23	Copyright issues Software Piracy	1	2
24	Patents understanding	1	2
25	Cyber Crimes, Understanding Cyber Crimes in context of Internet	1	2
26	Indian Penal Law & Cyber Crimes Fraud Hacking Mischief	1	2
27	International law	1	2
28	Obscenity and Pornography Internet, Potential of Obscenity Indian Law On Obscenity & Pornography Technical	1	3
29	Legal solutions International efforts Changes in Indian Laws	1	2
30	Ecommerce & Taxation	1	2
31	UNCITRAL model law of E- Commerce	1	3
32	Indian Legal Position on E-Commerce IT Act 2000/Indian Evidence Act/Draft law on E-Commerce	1	3

**Reference Books:** - Gray Hat Hacking: The Ethical Hackers Handbook by Allen Harper, Shon Harris, Cyber Laws by C.K punia, Sumit Enterprises  
- Cyber Crime and Law Enforcement by V. D. Dudeja, Commonwealth Publishers

**Course Outcome:**

After learning the course the students should be able to:

- Understand the core concepts of Defensive and Offensive Security.
- Understanding of breaching the networks domains and systems.
- Understanding the ethics of Hacking.
- Limitations of Penetration Testing.
- Cyber Crime Cases and IT act India and amendments.

**List of Experiments: (with Open Ended Problems)**

1. Download the tool samspace and carry out a whois on any of the domains.
2. Using google hacks /dorks carry out any three information gathering excercises.
3. Using bing, find the shared hosting details for a domain.
4. Using netcraft, identify the webserver / server associated with a domain of your choice.
5. Carry out an email header analysis on an email received (preferably from a non-gmail email ID) and document the identified information.
6. Carry out information gathering using FOCA.
7. Using Wireshark, create a Filter to capture only FTP traffic
8. Using wireshark, identify the version of SSL protocol used (SSLv1, SSLv2, SSLv3, TLSv1, TLSv2, etc) in any HTTPS web portal of your choice. You may need to login to get this information.
9. Carry out a port scanning on an internal lab machine using nmap.
10. Carry out a Vulnerability Scanning using Nessus and assess the report.

**Major Equipment:**

- VMWare-Workstation
- Linux (Kali/Fedora)
- Windows Server 2008
- Wireless Access Points
- Router
- Switches
- External Network Adapters – (Wireless and Wired)

**List of Open Source Software/learning website:**

- Linux
- Metasploit
- Aircrack-ng
- NetCat
- NSLookup
- FOCA
- Nessus
- [www.owasp.org](http://www.owasp.org)
- [www.cve.mitre.org](http://www.cve.mitre.org)
- [www.cert-in.org.in](http://www.cert-in.org.in)

**Review Presentation (RP):** The concerned faculty member shall provide the list of peer reviewed Journals and Tier-I and Tier-II Conferences relating to the subject (or relating to the area of thesis for seminar) to the students in the beginning of the semester. The same list will be uploaded on GTU website during the first two weeks of the start of the semester. Every student or a group of students shall critically study 2 papers, integrate the details and make presentation in the last two weeks of the semester. The GTU marks entry portal will allow entry of marks only after uploading of the best 3 presentations. A unique id number will be generated only after uploading the presentations. Thereafter the entry of marks will be allowed. The best 3 presentations of each college will be uploaded on GTU website