

GUJARAT TECHNOLOGICAL UNIVERSITY

Subject Name: Information System & Network Security

Subject Code: 3725103

Semester: II

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

Prerequisite:

- Basic Understanding of Information System
- Basic Understanding of Operating System management
- Basic Understanding of Network Management

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	Basics of Information System	2	4
2	The changing nature of Information System	2	4
3	Threats of Information System, Threats and attacks	2	4
4	Classification of Threats and attacks	2	4
5	Protecting Information System Security, Security in Wireless Computing	2	4
6	Credit Card frauds in mobile and wireless Computing	2	4
7	Security Policies and Measures in Mobile Computing	2	4
8	Information Security Management	2	4
9	Security Policy, Standards, Responsibility for Information Security Management	2	4
10	Information Security Processes and Best practices	2	4
11	E -Commerce Security, Building Blocks of Information Security	2	4
12	Basic principal of Information Systems Security, Information Security risk analysis	2	4
13	Term and Definitions for Risk Analysis of Information Security	2	4
14	Risk Management and Risk Analysis	2	6
15	Data Privacy Fundamentals	2	6
16	Attacks - Services – Mechanisms- Model of Network security.-OSI architecture	3	6

- Reference Books:**
- Information Security: Principles and Practices, Mark Merkow, James, Breithaupt Pearson
 - Fundamentals of Network Security, Eric Maiwald, TMH
 - Network Security Essentials by Stallings, Stallings William
 - Network Security: The Complete Reference

Course Outcome:

After learning the course the students should be able to:

- Understanding of discrete level of security in depth of communication layers.
- Understanding of Information System Architecture.
- Different levels of security for different types of attacks.
- Scenario based security analysis.
- Policy for secure networks.

List of Experiments: (with Open Ended Problems)

- 1 Sniff packet using wireshark, dsniiff and Cain and able
- 2 Working of bit locker in windows 7
- 3 Install and configure Data Recovery Agent
- 4 Install and Configure Truecrypt
- 5 Create SSH Connection without Password
- 6 CA using Auto enrolling and Web enrolling
- 7 Outlook Configure and issue mail certificate
- 8 Secure Mail Implementation using Thunderbird
- 9 Configure PGP and GPG in Linux
- 10 Configure Openssl in linux
- 11 Configure SSL in Apache2
- 12 Create Stunnel for secure comm...
- 13 SSLStrip use for catch Information
- 14 Configure Untangle and Working
- 15 Configure ClearOs and Working
- 16 Install and Configure Openvas
- 17 Install and Configure Nessus
- 18 Detail penetration test and solution using CVE of latest with detail description

Major Equipment:

- VMWare-Workstation
- Linux (Kali/Fedora/BT5/centOS)
- Windows Server 2008/2012
- Wireless Access Points
- Router
- Switches
- IP Camera
- External Network Adapters – (Wireless and Wired)
- Bio-Metric Devices – Finger Print Reader
- Bio-Metric Devices – Face Detector

List of Open Source Software/learning website:

- Linux
- Metasploit

- Nagios
- OpenVAS
- VPN/IPSec
- NetCat
- NSLookup
- Nessus
- www.owasp.org
- www.cve.mitre.org
- 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