

GUJARAT TECHNOLOGICAL UNIVERSITY

COMPUTER ENGINEERING (SYSTEMS & NETWORK SECURITY)(56)

NETWORK DEFENCE

SUBJECT CODE: 2735602

M.E. 3rd SEMESTER

Type of course: Major Elective IV

Prerequisite: Computer Network, Information Security

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)	PA (V)		PA(I)			
					PA	OEP	PA	RP		
3	2#	2	5	70	30	20	10	10	10	150

Content:

Sr. No	Topics	Teaching Hrs.	Module Weightage
1	Unit I: Network Security Firewalls, Biometrics, Intrusion Detection, Policy Management, Vulnerability Scanning, Encryption, Physical Security Mechanisms	5	15%
2	Unit II: Types of Attacks Access Attacks, Modification attacks, Denial-of-service attacks, Repudiation attacks	4	10%
3	Unit III: Security Policies Defining Various Policies: Information Policy, Security Policy , Computer Use Policy, Internet Use Policy, E-mail Policy , User Management Procedures , System Administration Procedure , Backup Policy , Incident Response Procedure , Configuration Management Procedure , Create Appropriate Policy, Deploy Policy, Use Policy effectively	4	15%
4	Unit IV: Virtual Private Networks Define Virtual Private Networks , Deploy User VPNs, Benefits of User VPNs , Issues with User VPNs , Managing User VPNs, Deploy Site VPNs , Benefits of Site VPNs , Issues with Site VPNs, Managing Site VPNs, Understand Standard VPN Techniques: VPN Server , Encryption Algorithms, Authentication System, VPN Protocol, Understand the Types of VPN Systems: Hardware Systems,	4	10%

	Software Systems , Web-based Systems, Differences Between VPN Types		
5	Unit V: Intrusion Detection Systems Define the Types of Intrusion Detection Systems, Set Up an IDS, Manage an IDS, Understand Intrusion Prevention, Deploy a Network IDS, Snort	6	20%

Reference Books:

1. Fundamentals of network and Security, Eric Maiwald/TMH
2. Network Security: The Complete Reference, Bragg

Course Outcome:

After learning the course the students should be able to gain knowledge of various attacks and get a knowhow to defend the attacks in the world of internet

List of Experiments:

Based on theory taught in the classroom.

Design based Problems (DP)/Open Ended Problem:

1. Study of firewalls and steps to configure them
2. Study of VPNs and steps to configure them
3. study of snort as an IDS tool
4. study of bro as an IDS tool.

List of Open Source Software/learning website: Snort, Wireshark

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.