



Sardar Patel Institute of Technology

Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058-India
(Autonomous Institute Affiliated to University of Mumbai)

Course Code	Course Name	Teaching Scheme (Hrs/week)			Credits Assigned			
		L	T	P	L	T	P	Total
TEITC603	System And Web Security	4	-	-	4	-	-	4
		Examination Scheme						
		ISE		MSE		ESE		
		10	30	100 (60% Weightage)				

Pre-requisite Course Codes	IT35 (Information Theory and Coding)	
After successful completion of the course, student will be able to:		
Course Outcomes	CO1	Interpret concepts of security ,authentication and authorization
	CO2	Illustrate the software security practices.
	CO3	Compare security model in Linux and windows operating system,
	CO4	Experimental analysis of attacks involved in network and web security

Module No.	Topics	Ref.	Hrs.
1	Introduction to Computer Security Vulnerabilities, Threats and Attacks, Public Key Cryptography and Cryptanalysis, Knapsack, cryptosystem	5,4	4
2	Authentication Authentication Methods and Protocols, Password based authentication, Token Based Authentication, Biometric Authentication, Digital Certificates, X.509 Directory Services, PKI, Needham Schroeder ,Authentication Protocol, Single sign on, Kerberos, Authentication Protocol, Federated Identity Management	5,4	8
3	Access Control Access control Policies: DAC, MAC, RBAC, Access control Matrix, ACLs and Capability Lists, Multiple level security model: Biba and Bell La Padula Models, Multilateral security, Covert channel, CAPTCHA	5	6
4	Software security Software Flaws, Buffer Overflow, Incomplete Mediation, Race conditions, Malware: Viruses, Worms, Trojans, Logic Bomb, Bots, Rootkits, Miscellaneous Software Attacks: Salami attack, Linearization Attacks, Trusted Computing: Software reverse engineering, Digital Rights management	5	8
5	Operating System Security Linux Security Model, File System Security, Linux Vulnerabilities, Windows Security Architecture, Windows Vulnerabilities	5	4



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6	Network Security Network security basics, TCP/IP vulnerabilities Layer wise: Packet Sniffing, ARP spoofing, port scanning, IP spoofing, TCP syn flood, DNS Spoofing, Internet Security Protocols: SSL, TLS, IPSEC, Secure Email and S/MIME, Denial of Service: Classic DOS attacks, Source Address spoofing, ICMP flood, SYN flood, UDP flood, Distributed Denial of Service, Defenses against Denial of Service Attacks. Firewalls, Intrusion Detection Systems: Host Based and Network Based IDS, Honey pots.	5	12
7	Web Security User Authentication and session management, Cookies, Secure HTTP, SQL Injection Techniques, Cross Site Scripting, Cross-Site Request Forgery, Session Hijacking and Management, Phishing and Pharming Techniques, Web Services Security	5	6
Total hours of instructions			48

References:

- 1) William Stallings ,”*Computer Security Principles and Practice*”, Pearson Education.
- 2) Charles P. Pfleeger,” *Security in Computing*”, Pearson Education
- 3) Dieter Gollman ,”*Computer Security*“, 3rd Edition, Wiley India.
- 4) Behrouz A. Forouzan ,”*Cryptography and Network Security*”, TATA McGraw hill.
- 5) Mark Stamp ,”*Information security Principles and Practice*”, Wiley publication.
- 6) Eric Cole,” *Network security bible*”, 2nd edition,Wiley India.
- 7) OWASP TOP 10: https://www.owasp.org/index.php/Top_10_2013