

GUJARAT TECHNOLOGICAL UNIVERSITY

Information & Communication Technology.

B. E. SEMESTER: VIII

Subject Name: **System and Networks Security.**

Subject Code: **183202**

Teaching Scheme				Evaluation Scheme			
Theory	Tutorial	Practical	Total	University Exam (E)		Mid Sem Exam (Theory) (M)	Practical (Internal)
				Theory	Practical		
4	0	2	6	70	30	30	20

Sr. No.	Course Content.
1.	Network Fundamentals. <ul style="list-style-type: none"> • LANs, WANs, MANs. • Network Software: Protocol Hierarchies, Design Issues in layers, Services Primitive. • Critique of the OSI and TCP. • Birth and Growth of the Internet, ARPANET, NSFNET. • Common networks: X.25, ATM, Ethernet, WLANs.
2.	Introduction to Security Issues. <ul style="list-style-type: none"> • Security Trends. • OSI Security Architecture.

	<ul style="list-style-type: none"> • Security attacks, Security Services and Security Mechanism. • Model of Network Security.
3.	Symmetric Ciphers. <ul style="list-style-type: none"> • Symmetric Cipher Model. • Substitution techniques. • Transposition techniques. • Steganography. • Block Cipher principles and Design issues. • Data Encryption Standard. • Advance Encryption Standard. • Traffic Confidentiality. • Key Distribution.
4.	Public Key Cryptography. <ul style="list-style-type: none"> • Principles. • RSA Algorithm. • Key Management. • Deffie-Hellman Key Exchange.
5.	Network Security. <ul style="list-style-type: none"> • Digital Signatures. • Authentication Protocols. • DSS. • Kerberos. • X.509 Authentication Services. • Public Key Infrastructure.
6.	Email Security and IP Security. <ul style="list-style-type: none"> • Introduction to PGP. • Introduction to S/MIME. • IP Security Overview. • IP Security Architecture.
7.	Web Security. <ul style="list-style-type: none"> • Threats and Security Approaches. • Secure Socket Layer. • Secure Electronic Transaction. • Intruders. • Intrusion Detection. • Password Management.
8.	Malicious Software.

	<ul style="list-style-type: none"> • Viruses and Related Threats. • Virus Countermeasures. • Distributed Denial of Service attacks. • Firewalls Design Principles. • Trusted System
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Text Books:

1. Computer Networks Fourth Edition Andrew S. Tenenbaum, Publisher: Prentice Hall
2. Cryptography and Network Security: Principles and Practices Fourth Edition William Stallings, Pearson.

Reference Books:

1. Data Communication Networking Forth Edition Behrouz A. Forouzan.
2. Cryptography & Network Security, Forouzan, Mukhopadhyay, McGrawHill.
3. Cryptography and Network Security (2nd Ed.), Atul Kahate, TMH.
4. Information Systems Security, Godbole, Wiley-India.
5. Information Security Principles and Practice, Deven Shah, Wiley-India.