**Techno India NJR Institute of Technology**

**Department of Computer Science and Engineering**



**TRAINING MODULE**

**Network Security Module**

* Network Fundamentals:
* OSI and TCP/IP models
* Network topologies
* Network protocols (e.g., Ethernet, IPv4, IPv6)
* Network devices (routers, switches, hubs)
* Local Area Networks (LANs):
* Ethernet standards and technologies
* LAN architectures (e.g., Token Ring, Ethernet)
* LAN technologies (e.g., Ethernet, Wi-Fi)
* LAN components and operation
* Wide Area Networks (WANs):
* Routing algorithms (e.g., distance vector, link-state)
* Routing protocols (e.g., RIP, OSPF, BGP)
* Switching concepts (e.g., VLANs, Spanning Tree Protocol)
* Network Addressing and Subnetting:
* IP addressing (IPv4 and IPv6)
* Subnetting and supernetting
* Address resolution (ARP, NDP)
* Network Address Translation (NAT)
* Network Security:
* Network threats and vulnerabilities
* Firewalls and intrusion detection systems
* Virtual Private Networks (VPNs)
* Secure protocols (e.g., SSL/TLS, IPsec)
* Network Performance and Quality of Service (QoS):
* Bandwidth and latency
* Traffic shaping and prioritization
* Network Management and Administration:
* Mobile IP and mobile ad hoc networks
* Network Virtualization and Cloud Computing:
* Virtualization concepts (e.g., virtual machines, containers)
* Cloud computing and network integration