Syllabus

Junior Cyber Security Associate

S No.	NOS/Module Name	Topics	Duration (Hours)		Learning Outcomes
			Theory	Lab	
1	Fundamentals of Network and Operating System	• Basic networking concepts including IP addressing, routing, and protocols • Principles of operating systems – file management, system processes, user interfaces • Network devices – routers, switches, firewalls and their interactions • Network settings configuration and troubleshooting • Operating system management, updates and system security	30	60	• Acquire knowledge of basic networking concepts, including IP addressing, routing, and network protocols. • Learn the principles of operating systems, such as file management, system processes, and user interfaces. • Understand how different network devices (routers, switches, firewalls) interact within a network. • Gain practical skills in configuring network settings and troubleshooting common networking issues. • Develop the ability to manage operating system settings, perform system updates, and ensure system security.

2	Fundamentals of Cyber Security	• Cybersecurity concepts – threats, vulnerabilities, and protocols • Data protection – encryption, access control, secure storage • Role of security tools – firewalls, IDS/IPS, antivirus • User authentication and access control • Cyber threat identification and mitigation	50	100	• Acquire knowledge of key cybersecurity concepts, including threats, vulnerabilities, and security protocols. • Learn the importance of data protection strategies, such as encryption, access controls, and secure storage. • Understand the role of firewalls, intrusion detection/prevention systems, and antivirus software in defending against cyber-attacks. • Gain practical skills in implementing security measures such as secure authentication, authorization, and user access controls. • Develop the ability to identify common cyber threats, including malware, phishing, and denial-of-service attacks, and understand techniques for mitigating them.

3	Cryptography and Ethical Hacking	• Cryptographic algorithms and applications • Symmetric and asymmetric encryption technique • Ethical hacking methodologies and tools • Penetration testing and system vulnerability assessment • Public Key Infrastructure and digital certificates	25	35	• Develop a thorough understanding of cryptographic algorithms, their applications, and their role in securing communication. • Learn how to implement various encryption and decryption techniques, including symmetric and asymmetric cryptography, in real-world scenarios. • Understand ethical hacking methodologies and tools used to identify and exploit vulnerabilities in network systems. • Gain practical experience in securing data using cryptographic techniques and conducting penetration testing to assess system vulnerabilities. • Demonstrate the ability to use cryptographic protocols and ethical hacking tools to evaluate and strengthen system security.
4	Network and Infrastructure Security	• Network security concepts – firewalls, IDS/IPS • Configuring network security devices • Secure network architecture and communication protocols • Mitigating common network attacks • Network monitoring and traffic analysis	15	15	• Acquire a comprehensive understanding of network security concepts, including firewalls, intrusion detection systems (IDS), and intrusion prevention systems (IPS). • Learn how to implement and configure network security devices to protect networks from unauthorized access and cyber threats. • Understand the principles of securing network protocols, such as TCP/IP, and how to protect against common network vulnerabilities. • Gain expertise in deploying security measures such as VPNs, network segmentation, and secure wireless configurations to enhance infrastructure security. • Demonstrate the ability to monitor and analyze network traffic to detect and respond to security incidents, ensuring the integrity and confidentiality of network data

Sub Total = 330 hours		120	210	
5	Employability Skills	60		Students will be able to get the additional skills apart from the technical skills, to be job ready
6	OJT/Project	60		Students will be able to learn the working in a job.
Total Duration		**450**		