Syllabus
Cyber Secured Web Development Associate

S No.	Module Name	Topics	Duration (Hours)		Learning Outcomes
			Theory	**Lab**	
1	Computer Fundamentals and Operating System	• Computer Fundamentals, Hardware / Software, Applications • Basics of Operating system, OS Installation (Window & Linux), Basics of Windows operating system, various types of Linux installation (Red Hat, Centos, Ubuntu), Booting process • Basic Linux Command, vi, vim, Nano text editor • Advance Linux Commands • Shell Scripting	120	60	• Students will acquire the foundation level knowledge required to understand computer and its operations • Students will understand the hardware and software components of the computer. • Students will get to know operating system and various different operating systems • Students will get to know the various Linux Commands.

| 2 | Fundamentals of Internet and Computer Network | • Basics of Internet, usages & its applications
• Introduction to LAN, MAN, PAN, WAN, WLAN
Ethernet Fundamentals and Cabling, ISO-OSI Reference Model, TCP/IP Model,
• IP address, Classes, Classless, CIDR, Prefix, IPv6 addressing
• TCP/IP Troubleshooting utilities like hostname, ipconfig/ ipconfig, Arp, Ping, tracert/trace route, Path ping, route, netstat, getmac, nslookup.
• Router and switch Hardware, enable telnet and SSH access on Router
• Basics of routing and switching, routing classification, Static Routing, Default routing, Dynamic routing
• Types of Switches, installation, configuration, MAC binding
• NAT Concept, static NAT, Dynamic NAT configuration and troubleshooting
• Gateway load balancing
• Switching process, VLAN concept, VLAN trunking protocol IEEE802.1Q, VTP
• Configuring services -Telnet, SSH, NFS, FTP, Web, DHCP, DNS etc.
• Access control Lists, standard ACL, Extended ACL, Named ACL
• Virtual Private Networks (VPNs), Concepts, Site-to-site VPN configuration, Easy VPN Server Concept. | 120 | 120 | • Students will get to know the effectively use the Internet for both information retrieval and data transfer.
• Students will understand the client server relationships between Web servers and Web browsers.
• Students will understand the different types of Networks.
• Students will understand the communication devices.
• Students will understand the domain name concept and services, Internet addressing and URL's.
• Students will plan and manage the back-end infrastructure of a small-to medium-size Web site. Design a simple web page using Hypertext Markup Language (HTML).
• Students will setup Internet network platforms effectively use the Internet for both information retrieval and data transfer.
• Students will establish and configure networking concepts. Understand how to perform simple network administration operation. |

| 3 | Web Application Development | **3.1 Front End Development**
• Introduction to Web Design
• Text Editors and their installation
• HTML-5 Basics and its uses
• Cascading Style Sheets (CSS)
• JavaScript
• Bootstrap- 4 and advance
3.2　Data base Concepts
• Introduction to Data base, types and comparative study
• Introduction to My SQL Work bench,
• My SQL data base
• Table & Views, My SQL Queries, clauses, conditions, joins
• Aggregate functions, My SQL functions (built in /custom)
3.3 Back End Development
• Introduction to the Website Development
• Implementation of a server-side programming language PHP and website security
• Database connectivity with PHP and My SQL | 100 | 200 | • Students will acquire the foundation level knowledge required to website development.
• Students will understand the database concepts and also create the database by using SQL.
• Students will understand the web designing concept by using the HTML.
• Students will get to know the database connectivity with PHP and MySQL.
• Students will understand the concept of Front End and Back End development. |

| 4 | Cyber Security & Web App Penetration Testing | **4.1 Ethical hacking (Cyber Security) & Counter Measures**
• Basics of Cyber Security
• Cryptography
• Introduction to Ethical Hacking
• Foot printing and Reconnaissance
• Scanning Networks
• Enumeration
• Vulnerability Analysis
• System Hacking
• Malware Threats
• Sniffing
• Social Engineering
• Denial-of-Service
• Session Hijacking
• Evading IDS, Firewalls, and Honey pots
• Hacking Wireless Networks
• Hacking Mobile Platforms
• IoT and OT Hacking
• Cloud Computing & its Security
• securing DNS server
• securing Web server
• Securing DB server
• Linux based Firewall, IP tables, ACLs, etc
4.2 Web App Penetration

• Hacking Web Servers & Applications
• Web Application Testing Frameworks
• OWASP top 10
• Secure Coding Practices
• Web Application API Testing
• Best Practices for Protecting Web Applications | 50 | 130 | • Students will acquire knowledge of Cyber Security.
• Students will understand the different terms under Cyber Security.
• Students will understand the ethical hacking.
• Students will understand the different threats.
• Students will understand the different platforms of Hacking.
• Students will understand how to secure the different types of server.
• Students will understand the hacking web servers & applications. |

Sub Total = 900 hours		390	510	
5	Employability Skills	60		Students will be able to get the additional skills apart from the technical skills, to be job ready
6	OJT	30		Students will be able to learn the working in a job.
Total Duration		**990**		

List of Tools and Equipment

S. No.	Tool / Equipment Name	Specification	Quantity for specified Batch size
1	Classroom	1 (30 Sq.m)	30
2	Student Chair	30	30
3	Student Table	30	30
4	Desktop computers with accessories	Installed with: MS Office/Libreoffice Google Chrome Adobe Photoshop Adobe in Design CorelDraw Word press Adobe Dreamweaver Bootstrap Github Adobe Flash Notepad ++ Or Free open-source alternative available Software	30
5	Desk jet printer	1 Nos.	A4