Cyber Security – Syllabus

	MON	TUE	WED	THU	FRI	ENVIRONMENT
Week 1 **Networking Fundamentals**	First day orientation • Intro to network devices • Hubs vs switches vs router • WAP-Wireless access point • Ethernet • Configuring a router	• OSI Model • TCP/IP • OSI vs TCP/IP models • VPN • VPN Deployment • DHCP • DHCP - Client and server • DNS	• WAN Fundamentals • WAN topology • Connection Types - circuit switched, packet switched	• Twisted pair wiring standards • Coaxial cables • Ethernet standards • Fiber cable and connections	• Network topologies - bus, star, ring, mesh, hybrid • Client-server network • Peer-to-peer network	
Week 2 **Advanced networking**	Written evaluation Trainer interviews Quality Control Audit • Wired network infrastructure • SCADA & ICS systems Fundamentals • Case study	• Network Address scheme • IPV4- IPV6 • CIDR Notation • Private vs Public IP addresses • IPV6 Details • Rouge DHCP Servers • Network Naming • DNS Troubleshooting	• Routing protocol - Distance vector, link-state hybrid • Routing loops • Routing High availability • Network Address Translation • Port forwarding	• Unified Communications • Unified communications components • Quality of Service • Introduction to Wireshark • Wireshark captures • Telnet & SSH • FTP	• Virtual networks • Virtualization • NAS & SAN • Cloud computing -Cloud Service Models -Cloud Delivery Models • Network Design Basics • Subnetting • Case study	
Week 3 **Web Technologies & XML**	Written evaluation Trainer interviews Quality Control Audit • HTML 5 • HTML Forms • CSS3 • Bootstrap	• JavaScript Overview • JSON Overview • Events & Listeners	• DOM Selection • DOM Manipulation • Callback functions	• Introduction to XML • XML Schema / DTD Overview • Well-formed vs valid XML • XML namespace	Project 1 • Bubbling, Capturing • Event object • Cancelling events • AJAX Introduction • AJAX Workflow • AJAX with XmlHttpRequest object • Working with JSON in AJAX	

	MON	TUE	WED	THU	FRI	ENVIRONMENT
Week 4 **Network Security**	Project 1 Written evaluation Trainer interviews Quality Control Audit • Recent attack trends • Authentication / authorization vulnerabilities & defense	Project 1 • SSL vulnerabilities & testing • Encryption in web applications - symmetric/asymmetric • Session vulnerabilities and testing • Cross-site request forgery • Business logic flaws • Concurrency • Input-related flaws and related defenses	Project 1 • XSS vulnerability, defenses • Web environment configuration security • Intrusion detection in web apps • Incident handling • Honeytoken	Project 1 • Web services overview • Security in parsing of XML • XML security • AJAX attack trends and common attacks • AJAX defense	Project 1 • Java applet security • Single-sign-on solution & security • clickjacking • DNS rebinding • Flash security • IPv6 impact on security	
Week 5 **Cloud Computing, User Management**	Project 1 Trainer interviews Quality Control Audit • Intro to Cloud Computing • IaaS/PaaS/SaaS • Overview of cloud providers - AWS, GCP, Azure	Project 1 • AWS Services - overview of groups • Shared Responsibility Model • Intro to IAM • Access control and policies • Authentication vs Authorization • User account types	Project 1 • Working with VPCs • Deploying EC2 Instances	Project 1 • Security Groups • Access to VPC, EC2s • Tunnelling and SSH fundamentals	Project 2 • Intro to cryptography • Working with PKI • Asymmetric encryption	
Week 6 **Security & Operations Management**	Project 2 Written evaluation Trainer interviews Quality Control Audit • Intro to Security Policies & Procedures • Intro to General Government Security Policies • Intro to security architecture	Project 2 • Security models - NIST, ISO, FIPS standards • Biba, Bell LaPadula, State machines, Chinese wall • Access control matrix, Information flow, Graham-Denning, HRU	Project 2 • Configuring AWS CloudWatch, CloudTrail, VPC Flow Logs • Monitoring & Logging on AWS • Intro to External Monitoring Tools • ELK, Splunk, Nessus	Project 2 • Audit and monitoring plans • Understanding audit logs • Event monitoring • Vulnerability scan analysis	Project 2 • Disaster recovery fundamentals • Pilot light, warm-up standby, site-by-site • Planning and execution • Migration fundamentals • Configurations • Capacity planning	

	MON	TUE	WED	THU	FRI	ENVIRONMENT
Week 7 **Security Documentation & Reports**	Project 2 Written evaluation Trainer interviews Quality Control Audit • Security Reports, Procedures • System security plan	Project 2 • Security control assessment • Testing & evaluation • FISMA, GAO FISCAM audits	Project 2 • Incident-response plan • Action plans and milestones • Configuration management plan	Project 2 • NIST Risk Management Framework • Preparations • System categorization / authorization • Select, Implement, Access controls • Monitoring • Roles and responsibilities	Project 3 • Risk Assessment Reports • Working with A&A Tools • eMSS, XACTA, CSAM • FedRAMP Specifications	
Week 8 **Project 3**	Project 3 Written evaluation Trainer interviews Quality Control Audit Panel Orientation	Project 3	Project 3	Project 3	Project 3 Portfolios Due to QC	
Week 9 **Panels**	Project 3 QC Audit - Cumulative Panels begin Staging "Handshake"	Project 3	Project 3 Portfolio approval due date	Project 3	Project 3	
Week 10 **Project Showcase**	Project 3	Project 3	Project 3	Project 3 Project showcase	Promotion ceremony	

PROJECT	TECHNOLOGIES
Project 1	Networking, HTML, CSS, JavaScript
Project 2	Networking & Security, AWS
Project 3	Cybersecurity showcase