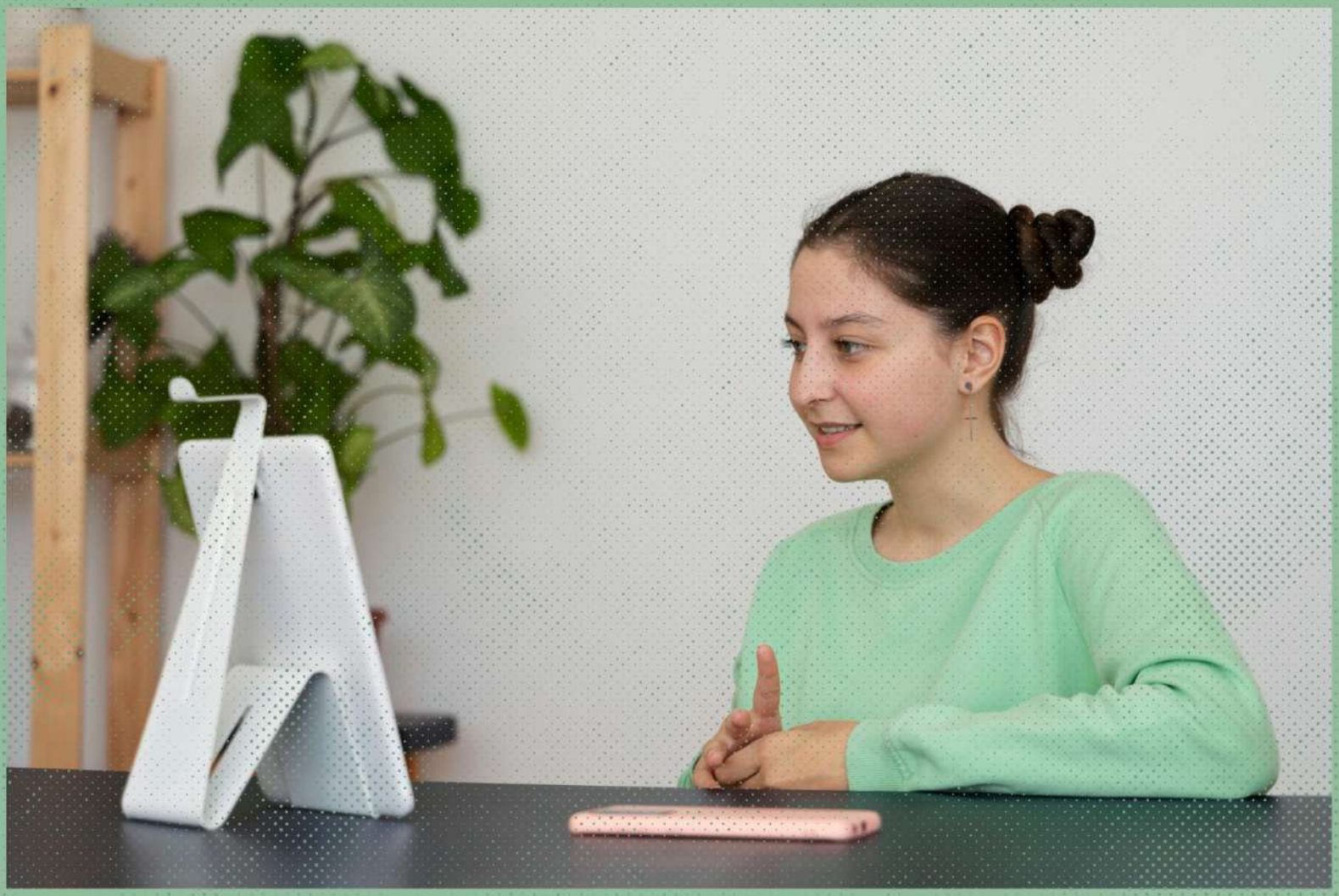
Certified Internet of Things Security Practitioner (CIoTSP)



Online Course

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Course Modules

Securing IoT Portals

1.Identify common threats used to compromise unsecure web

- Account enumeration
- Weak default credentials
- Injection flaws
- Unsecure direct object references
- Sensitive data exposure
- CSRF
- Unvalidated redirects and forwards
- Session Management
- Malformed URLs
- Session replay
- Reverse shell
- Misconfiguration
- Weak account lockout settings
- No account lockout
- Unsecured credentials
- Lack of integration credentials on Edge devices

2.Implement countermeasures used to secure web, cloud

- Change default passwords
- Secure password recovery mechanisms
- Secure the web interface from XSS, SQLi, or CSRF
- Robust password policies
- Account lockout policies
- Protect against account enumeration
- 2FA if possible
- Granular role-based access

Implementing Authentication, Authorization, and Accounting

3.Identify common threats used to exploit weak authenticatn

- Lack of password complexity
- Poorly protected credentials
- Lack of 2FA
- Unsecure password recovery
- Privilege escalation
- Lack of RBAC
- Unsecure databases and datastores
- Lack of account lockout policy
- Lack of access auditing
- Lack of security monitoring
- Lack of security logging

4.countermeasures used to provide secure authentication

- Granular access control
- Password management
- Ensure re-authentication is required for sensitive features
- Event logging and IT/OT admin notification
- Security monitoring

Securing Network Services

5.Identify common threats used to exploit unsecure network .

- Vulnerable services
- Buffer overflow
- Open ports via UPnP
- Exploitable UDP services
- DoS/DDoS
- DoS via network device fuzzing
- Endpoint (address) spoofing
- Packet manipulation/injection
- Networking, protocols, radio communications

6 countermeasures used to provide secure network services.

- Port control
- Secure memory spaces
- DoS mitigation/DDoS
- Secure network nodes
- Secure field devices
- Secure network pathways

Securing Data

7.Identify common threats used to exploit unsecure data.

- Vulnerable data in motion
- Vulnerable data at rest
- Vulnerable data in use

8.Implement countermeasures used to secure data.

- Encrypt data in motion, at rest, and in use

Addressing Privacy Concerns

9.Identify common threats used to compromise privacy.

- Collection of unnecessary personal or sensitive information
- Unsecured data in transit or at rest
- Unauthorized access to personal information
- Lack of proper data anonymization
- Lack of data retention policies

10. Implement countermeasures used to ensure data privacy.

- Only collect critical data
- Protect sensitive data
- Comply with regulations/laws
- Authorize data users
- Data retention policies
- Data disposal policies
- End-user notification policies (GDPR)
- Enable courtesy notifications to end users
- Enable notifications as required by law

Securing Software/Firmware

11. Identify comn threats used to exploit unsecure software

- Poorly designed/tested software/firmware
- Unsecure updates/patches
- Firmware contains sensitive information
- Lack of OTA updates
- Constrained devices with non-existent security features
- Lack of end-to-end solution
- Software/firmware not digitally signed
- Unsecure bootloader/boot
- Unsecure key storage

12. countermeasures used to provd secure software/firmware.

- Digitally signed updates
- Remote update capability for, e.g., bootloader, firmware, OS
- Secure updates/digitally signed updates
- Root-of-trust/secure enclave
- Secure bootloader/boot, measured boot

Enhancing Physical Security

13. common threats used to exploit poor physical security.

- Access to software/configuration via physical ports
- Access to or removal of storage media
- Unprotected shell access for accessible ports
- Unrestricted physical access to vulnerable devices
- Easily disassembled devices

14. Implmt countermeasures used to ensure physical security.

- Protect data storage medium
- Encrypt data at rest
- Protect physical ports
- Tamper-resistant devices
- Limit physical access when possible
- Hardened security for shell access
- Limit administrative capabilities and access

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