

Certified Tech Trainers CISSP™ Certification Preparation

Content Outline

❖ **Security Domain: Security Management Practices**

- **Security Management**
- **Security management Responsibilities**
- **Security Administration and Supporting Controls**
- **Fundamental Principles of Security**
 - **Confidentiality**
 - **Integrity**
 - **Availability**
- **Security Definitions**
- **The Top-Down Approach**
- **Organizational Security Model**
- **Business Requirements – Private Industry versus Military Organizations**
- **Risk Management**
- **Risk Analysis**
 - **Risk Analysis Team**
 - **Value of Information and Assets**
 - **Costs That Make Up the Value**
 - **Identifying Threats**
 - **Quantitative Approach**
 - **Analysis Inputs and Data Gathering**
 - **Automated Risk Analysis Methods**
 - **Steps of a Risk Analysis**
 - **Results of a Risk Analysis**
 - **Qualitative Risk Analysis**

Content Outline

- **Quantitative versus Qualitative**
- **Protection Mechanisms**
- **Putting It Together**
- **Total Risk versus Residual Risk**
- **Handling Risk**
- **Policies, Procedures, Standards, and Guidelines**
 - **Security Policy**
 - **Standards**
 - **Baselines**
 - **Guidelines**
 - **Procedures**
 - **Implementation**
- **Data Classification**
 - **Private Business versus Military Classifications**
- **Layers of Responsibility**
 - **Data Owner**
 - **Data Custodian**
 - **User**
 - **Personnel**
 - **Structure**
- **Hiring Practices**
 - **Operations**
 - **Termination**
- **Security Awareness**

Certified Tech Trainers CISSP™ Certification Preparation
Content Outline

- **Summary**
- **Quick Tips**
 - **Questions & Answers**
- ❖ ***Security Domain: Access Control***
- ❖ ***Access Control***
- ❖ ***Security Principles***
 - **Confidentiality**
 - **Integrity**
 - **Availability**
- ❖ ***Identification, Authentication, Authorization, and Accountability***
 - **Identification**
 - **Authentication**
 - **Authorization**
 - **Single Sign-On**
- ❖ ***Access Control Models***
 - **Discretionary**
 - **Sensitivity Labels**
 - **Role-Based**
- ❖ ***Access Control Techniques and Technologies***
 - **Role-Based Access Control**
 - **Rule-Based Access Control**
 - **Restricted Interfaces**
 - **Access Control Matrix**
 - **Capability Tables**

Content Outline

- **Access Control Lists**
- **Content-Dependent Access Control**
- ❖ ***Access Control Administration***
 - **Centralized**
 - **Decentralized and Distributed Access Administration**
- ❖ ***Access Control Methods***
 - **Access Control Layers**
 - **Administrative**
 - **Physical Controls**
 - **Technical Controls**
 - **Administrative Controls**
 - **Physical Controls**
 - **Logical Controls**
- ❖ ***Access Control Types***
 - **Accountability**
- ❖ ***Access Control Practices***
 - **Unauthorized Disclosure of Information**
- ❖ ***Access Control Monitoring***
 - **Intrusion Detection**
- ❖ ***A Few Threats to Access Control***
 - **Dictionary Attack**
 - **Brute Force Attack**
 - **Spoofing at Login**
- ❖ ***Summary***

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Content Outline

❖ **Quick Tips**

- Questions & Answers

❖ **Security Domain: Security Models and Architecture**

➤ **Security Models and Architecture**

➤ **Computer Architecture**

- Central Processing Unit
- Memory
- CPU Modes and Protection Rings
- Operating States
- Multithreading, Multitasking, and Multiprocessing
- Input/Output Device Management
- Tying It Together

➤ **System Architecture**

- Defined Subset of Subjects and Objects
- Trusted Computing Base
- Security Perimeter
- Reference Monitor and Security Kernel
- Domains
- Resource Isolation
- Security Policy
- Least Privilege
- Layering, Data Hiding, and Abstraction

➤ **Security Models**

- State Machine Models

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Content Outline

- **Bell-LaPadula Model**
- **Biba**
- **Clark-Wilson Model**
- **Information Flow Model**
- **Noninterference Model**
- **Security Modes of Operation**
 - **Dedicated Security Mode**
 - **System-High Security Mode**
 - **Compartmented Security Mode**
 - **Multilevel Security Mode**
 - **Trust and Assurance**
- **Systems Evaluation Methods**
- **The Orange Book**
 - **Division D – Minimal Protection**
 - **Division C – Discretionary Protection**
 - **Division B – Mandatory Protection**
 - **Division A – Verified Protection**
- **Rainbow Series**
 - **Red Book**
- **Information Technology Security Evaluation Criteria**
- **Common Criteria**
- **Certification versus Accreditation**
 - **Certification**
 - **Accreditation**

Content Outline

- **Open versus Closed Systems**
 - **Open Systems**
 - **Closed Systems**
- **A Few Threats to Security Models and Architectures**
 - **Covert Channels**
 - **Countermeasures**
 - **Back Doors**
 - **Timing Issues**
 - **Buffer Overflows**
- **Summary**
- **Quick Tips**
 - **Questions & Answers**
- ❖ ***Security Domain: Physical Security***
 - **Physical Security**
 - **Planning Process**
 - **Facilities Management**
 - **Physical Attributes of the Facility**
 - **Construction**
 - **Facility Components**
 - **Computer and Equipment Rooms**
 - **Physical Security Risks**
 - **Physical Security Component Selection Process**
 - **Security Musts**
 - **Security Shoulds**

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Content Outline

- Backups
- Environmental Issues
 - Ventilation
 - Fire Prevention, Detection, and Suppression
 - Types of Fire Detection
 - Fire Suppression
- Administrative Controls
 - Emergency Response and Reactions
- Perimeter Security
 - Facility Access Control
 - Personnel Access Controls
 - External Boundary Protection Mechanisms
 - Intrusion Detection Systems
- Summary
- Quick Tips
 - Questions & Answers
- ❖ **Security Domain: Telecommunications and Networking Security**
 - Telecommunications and Network Security
 - Open System Interconnect Model
 - Application Layer
 - Presentation Layer
 - Session Layer
 - Transport Layer
 - Network Layer

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Content Outline

- **Data Link Layer**
- **Physical Layer**
- **Tying the Layers Together**
- **TCP/IP**
 - **Data Structures**
 - **IP Addressing**
- **Networking**
 - **LAN Media Access Technologies**
 - **Cabling**
 - **Cabling Problems**
- **Types of Transmission**
 - **Analog and Digital**
 - **Asynchronous and Synchronous**
 - **Broadband and Baseband**
 - **LAN Transmission Methods**
- **Network Topology**
 - **Ring Topology**
 - **Bus Topology**
 - **Star Topology**
 - **Mesh Topology**
- **LAN Media Access Technologies**
 - **Token Passing**
 - **CSMA**
 - **Collision Domains**

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- **Polling**
- **Protocols**
 - **Address Resolution Protocol**
 - **Reverse Address Resolution Protocol**
 - **Internet Control Message Protocol**
- **Networking Devices**
 - **Repeaters**
 - **Bridges**
 - **Forwarding Tables**
 - **Routers**
 - **Routing**
 - **Switches**
 - **VLAN**
 - **Brouters**
 - **Gateways**
 - **PBX**
 - **Firewalls**
- **Network Segregation and Isolation**
- **Networking Services**
 - **Network Operating Systems**
 - **DNS**
 - **Internet DNS and Domains**
 - **Directory Services**
- **Intranets and Extranets**

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Content Outline

- **Private IP Addresses**
- **Network Address Translation**
- **Metropolitan Area Network**
- **Wide Area Network**
 - **Telecommunications Evolution**
 - **Dedicated Links**
 - **T-carriers**
 - **S/WAN**
 - **WAN Technologies**
 - **Multiservice Access**
- **Remote Access**
 - **Dial-Up and RAS**
 - **ISDN**
 - **DSL**
 - **Cable Modems**
 - **VPN**
 - **Tunneling Protocols**
- **Network and Resource Availability**
 - **Single Points of Failure**
 - **RAID**
 - **Clustering**
 - **Backups**
- **Wireless Technologies**
 - **Wireless Communications**

Content Outline

- **Wireless Personal Area Network**
- **Summary**
- **Quick Tips**
 - **Questions & Answers**
- ❖ **Security Domain: Cryptography**
 - **Cryptography**
 - **History of Cryptography**
 - **Cryptography Definitions**
 - **Strength of Cryptosystem**
 - **Goals of Cryptosystems**
 - **Types of Ciphers**
 - **Substitution Cipher**
 - **Transposition Cipher**
 - **Running and Concealment Ciphers**
 - **Steganography**
 - **The Government's Involvement with Cryptography**
 - **Clipper Chip**
 - **Key Escrow**
 - **Methods of Encryption**
 - **Symmetric versus Asymmetric Algorithms**
 - **Stream and Block Ciphers**
 - **Types of Symmetric Systems**
 - **Asymmetric Encryption Algorithms**
 - **Hybrid Encryption Methods**

Content Outline

- **Public Key Infrastructure (PKI)**
 - **Certificate Authorities**
 - **Certificates**
 - **Registration Authority**
 - **PKI Steps**
- **One-Way Function**
- **Message Integrity**
 - **One-Way Hash**
 - **Digital Signatures**
 - **Digital Signature Standard (DSS)**
 - **Different Hashing Algorithms**
 - **Attacks Against One-Way Hash Functions**
 - **One-Time Pad**
- **Key Management**
 - **Key Management Principles**
- **Link versus End-to-End Encryption**
 - **Hardware versus Software Cryptography Systems**
- **E-mail Standards**
 - **Privacy-Enhanced Mail**
 - **Message Security Protocol**
 - **Pretty Good Privacy (PGP)**
- **Internet Security**
 - **Start with the Basics**
- **Attacks**

Content Outline

- **Ciphertext-Only Attack**
- **Known-Plaintext Attack**
- **Chosen-Plaintext Attack**
- **Chosen-Ciphertext Attack**
- **Man-in-the-Middle Attack**
- **Dictionary Attacks**
- **Replay Attack**
- **Summary**
- **Quick Tips**
 - **Questions & Answers**
- ❖ **Security Domain: Disaster Recovery and Business Continuity**
 - **Business Continuity and Disaster Recovery**
 - **Make It Part of the Security Policy and Program**
 - **Business Impact Analysis**
 - **Interdependencies**
 - **Contingency Planning Requirements**
 - **Developing Goals for Contingency Plans**
 - **Developing the Team**
 - **Enterprisewide**
 - **Plan Development**
 - **Identifying Business Critical Functions**
 - **Identifying the Resources and Systems That Support the Critical Functions**
 - **Estimating Potential Disasters**
 - **Selecting Planning Strategies**

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Content Outline

- **Implementing Strategies**
- **Testing and Revising the Plan**
- **End-User Environment**
- **Backup Alternatives**
 - **Hardware Backup**
 - **Software Backup**
- **Choosing a Software Backup Facility**
 - **Documentation**
- **Recovery and Restoration**
 - **Testing and Drills**
 - **Checklist Test**
 - **Structured Walk-Through Test**
 - **Simulation Test**
 - **Parallel Test**
 - **Other Types of Training**
- **Emergency Response**
- **Summary**
- **Quick Tips**
 - **Questions**
 - **Answers**
- ❖ ***Security Domain: Law, Investigation, and Ethics***
 - **Laws, Investigation, and Ethics**
 - **Ethics**
 - **Code of Ethics Summary**

Content Outline

- **Computer Ethics Institute**
- **Internet Activities Board**
- **Generally Accepted System Security Principles (GASSP)**
- **Motivations, Opportunities, and Means**
- **Hackers and Crackers**
 - **Operations Security**
 - **Dumpster Diving**
 - **Emanations Capturing**
 - **Wiretapping**
 - **Social Engineering**
 - **Masquerading**
- **Well-Known Computer Crimes**
 - **Cuckoo's Egg**
 - **Kevin Mitnick**
 - **Chaos Computer Club**
 - **Cult of the Dead Cow**
 - **Phone Phreakers**
- **Identification, Protection, and Prosecution**
- **Liability and Its Ramifications**
 - **Personal Information**
 - **Hacker Intrusion**
- **Types of Laws**
 - **Intellectual Property Laws**
- **Discarding Equipment and Software Issues**

Content Outline

- **Computer Crime Investigations**
 - **A Different Approach**
 - **Computer Forensics and Proper Collection of Evidence**
 - **Incident Handling**
 - **What Is Admissible in Court?**
 - **Surveillance, Search, and Seizure**
 - **Interviewing and Interrogating**
- **Import and Export Laws**
- **Privacy**
- **Laws, Directives, and Regulations**
 - **Health Insurance Portability and Accountability Act (HIPPA)**
 - **Gramm Leach Bliley Act of 1999**
 - **Computer Fraud and Abuse Act**
 - **Federal Privacy Act of 1974**
 - **Computer Security Act of 1987**
 - **Security and Freedom Through Encryption Act**
 - **Federal Sentencing Guidelines**
 - **Economic Espionage Act of 1996**
- **International Cooperation Efforts**
 - **G8**
 - **Interpol**
 - **European Union**
- **Summary**
- **Quick Tips**

Certified Tech Trainers CISSP™ Certification Preparation
Content Outline

- **Questions & Answers**
- ❖ **Security Domain: Application and System Development**
 - **Applications and System Development**
 - **Device versus Software Security**
 - **Different Environments Demand Different Security**
 - **E-Commerce**
 - **Client/Server Model**
 - **Environment versus Application Controls**
 - **Complexity of Functionality**
 - **Data Types, Format, and Length**
 - **Implementation and Default Issues**
 - **Implementation**
 - **Failure States**
 - **Database Management**
 - **Database Management Software**
 - **Database Models**
 - **Relational Database Components**
 - **Data Dictionary**
 - **Integrity**
 - **Database Security Issues**
 - **Data Warehousing and Data Mining**
 - **System Development**
 - **Management of Development**
 - **Life Cycle Phases**

Content Outline

- **System Design Specifications**
- **Change Control**
- **Application Development Methodology**
 - **Object-Oriented Concepts**
 - **Data Modeling**
 - **Software Architecture**
 - **Data Structures**
 - **ORBs and COBRAs**
 - **Computer-Aided Software Engineering (CASE)**
 - **Prototyping**
 - **COM and DCOM**
 - **Open Database Connectivity (ODBC)**
 - **Object Linking and Embedding (OLE)**
 - **Dynamic Data Exchange**
 - **Distributed Computing Environment**
 - **Expert Systems and Knowledge-Based Systems**
 - **Artificial Neural Networks**
 - **Java**
 - **ActiveX**
 - **Malicious Code**
 - **Attacks**
- **Summary**
- **Quick Tips**
 - **Questions & Answers**

Content Outline

❖ **Security Domain: Operations Security**

➤ **Operational Security**

- **Administrative Management**
- **Accountability**
- **Security Operations and Product Evaluation**
- **Input and Output Controls**

➤ **Electronic Mail Security**

- **Facsimile Security**
- **Hack and Attack Methods**
- **Operations Department**

➤ **Summary**

➤ **Quick Tips**

- **Questions & Answers**