

GENESIS ITU

CompTIA Security+ Fundamentals

Threats, architecture, identity, operations & incidents

College-style student textbook & workbook · Clean · Practical · Professional

Zarco AI Systems LLC · Genesis ITU

How to use this book

Read each chapter in order. Learn formal definitions the way employers and exams use them. Complete pause-and-review prompts. Use only authorized lab systems. This course teaches lawful, professional practice.

Table of Contents

- Chapter 1 — Goals & governance
- Chapter 2 — Threats & attacks
- Chapter 3 — Architecture
- Chapter 4 — Identity & access
- Chapter 5 — Cryptography basics
- Chapter 6 — Operations
- Chapter 7 — Incident response
- Chapter 8 — Ethics & career

Chapter 1 — Goals & governance

CIA triad, policy, and risk sit under every control decision.

CIA triad

Confidentiality, Integrity, Availability.

Least privilege

Only the access required for the role.

Pause and review. *One example of each CIA element.*

Chapter 2 — Threats & attacks

Actors, vulnerabilities, malware, phishing, and password attacks.

Vulnerability

Weakness that can be exploited.

- Patch known issues
- Train users on phishing
- Inventory assets

Chapter 3 — Architecture

Defense in depth, segmentation, secure baselines, zero-trust ideas.

Defense in depth

Layered controls so one failure is not total compromise.

Chapter 4 — Identity & access

Authentication, authorization, accounting. MFA and strong identity lifecycle.

MFA

Multiple authentication factors together.

Pause and review. *Why is MFA stronger than passwords alone?*

Chapter 5 — Cryptography basics

Symmetric vs asymmetric, hashing, certificates, TLS for data in transit.

Hashing

One-way digest used to detect change.

TLS

Encryption for data in transit on many services.

Chapter 6 — Operations

Logging, monitoring, backups with tested restores, change management.

- Centralize critical logs
- Test restores
- Define alert severity

Chapter 7 — Incident response

Prep → detect/analyze → contain → eradicate → recover → lessons learned. Preserve evidence when required.

Pause and review. List IR lifecycle stages.

Chapter 8 — Ethics & career

Only authorized testing. Privacy matters. Paths: SOC, GRC, cloud security, deeper DFIR with more training.

Closing

Review every formal definition before practice exams. Continue with labs, instructor video when available, and job-path practice on NodePath or REACH. Genesis ITU wishes you steady progress.

Genesis ITU · Educational use · Authorized systems only