

Security and Risk: Management and Certifications Simple (for real)



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Summary

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**Disclaimer**

# Course Introduction (Soderi Part)

The course is mainly divided into two parts (two teachers: Simone Soderi = red / Antonio Belli = blue)

1. Basic Concepts;

2. Planning for Cybersecurity;

3. Cybersecurity Operations and Management;

4. Security Assessment and use cases;

5. Certification and Frameworks for Organizations and management systems;

6. Certification of products and technologies;

7. Frameworks that describe the competencies;

8. Certification of people;

9. Most common Certifications available on the market;

10. Audit techniques and approach examples

About the exam:

* last year, there was a report made about the contents of the course
  + many copied with ChatGPT, so the professor is quite vocal about it
* this year, it’s not defined yet

Basically, the contents of “00-Course Introduction” is a presentation about thesis possible with the teacher and other general content. Move on.

# M1.1 - Basic Concepts

Let’s first talk about the cyberspace (as defined by Nation Research Council in USA) based mainly on:

* *artifacts* based on or dependent on computer and communications technology;
* the *information* that these artefacts use, store, handle, or process;
* the *interconnections* among these various elements.

Immagine che contiene testo, cerchio, Dispositivo di archiviazione dati, compact disk

Descrizione generata automaticamenteThe following are the cybersecurity knowledge areas, with figure coming from the CyBOK (Cyber Security Body of Knowledge):

In general, we can say:

* the book aims to codify the foundational and generally recognised knowledge on cyber security
* CyBOK grouped into five (not orthogonal) broad categories
* Clearly, other possible categorisations of these Knowledge Areas (KAs) may be equally valid
  + Immagine che contiene testo, schermata, Carattere, logo

    Descrizione generata automaticamenteand ultimately some of the structure is relatively arbitrary

Cybersecurity is the collection of tools, policies, security concepts, security safeguards, guidelines, risk management approaches, actions, training, best practices and technologies that are used to protect the cyberspace environment and organizations and user’s asset.

We give some useful definition:

* asset
  + Where
    - Software-hardware
  + What
    - Data contained in an information system; or a service provided by a system or a system capability
      * such as processing power or communication bandwidth, an item of system equipment
      * such as hardware, firmware, software, or documentation
* risk
  + Where
    - Measure-impact
  + What
    - The risk is the possibility that human actions or events lead to consequences that have an impact on what humans value
    - It is important to estimate the likelihood of events that may lead to an impact.
* threat
  + Where
    - Capability-danger
  + What
    - A potential for violation of security that exists when there is a circumstance, a capability, an action, or an event that could breach security and cause harm
    - Basically, a threat is a possible danger that might exploit a vulnerability
* vulnerability
  + Where
    - flaw-design
  + What
    - A flaw or weakness in a system’s design, implementation, or operation and management that could be exploited to violate the system’s security policy

We discuss also about information security, which is:

* Preservation of confidentiality, integrity and availability of information
* In addition, other properties, such as authenticity, accountability, non-repudiation, and reliability can also be involved

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Descrizione generata automaticamenteCybersecurity has different objectives:

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Descrizione generata automaticamenteBut also has different dilemmas:

Risk is the possibility that human actions or events lead to consequences that have an impact on what humans value. There are different dimensions to consider:

* *Risk Assessment* is a process of collating observations and perceptions of the world that can be justified by logical reasoning or comparisons with actual outcomes
* *Risk Management* is the process of developing and evaluating options to address the risks in a manner that is agreeable to people whose values may be impacted
* *Risk Governance* set of ongoing processes and principles that aims to ensure an awareness and education of the risks faced when certain actions occur, and to inspire a sense of responsibility and accountability to all involved in managing it

There are different reasons on why risk assessment is important (analytic process to reduce the risk and possibly mitigate the costs):

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Descrizione generata automaticamenteConsider the differences between the level of analysis inside systems: