Systems Thinking Alliance

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Certified Systems Thinking Associate (CSTA)

Embark on a transformative journey into the world of systems thinking with our **Certified Systems Thinking Associate (CSTA) program**. This forward-thinking certification is designed for individuals who seek a profound understanding of systems thinking concepts, principles and approaches. Its goal is to equip individuals with the practical skills to navigate complex, real-world challenges.

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Who is it for?

For those eager to start their systems thinking journey, this certification builds a strong foundation in systems concepts, principles, and laws, helping you understand and navigate complex systems with clarity and confidence.

"I would definitely recommend this course to anyone looking to sharpen their problem-solving abilities. It will open your eyes to just how intricate and interconnected our world is, and provide you with tools to better navigate that complexity."

- ***Jeroen de Jong***

"The balance between conceptual depth and real-world applicability is rare in this kind of training, and it shows. Highly recommended for anyone who wants systems thinking to actually change how they work, not just how they think."

- Laura Togui

"The concepts shared in this course have genuinely become a way of life for me, and I am eagerly looking forward to the practitioners course!"

- Humaira Ghiacy

Hours : 16 Language: English Level: Foundational

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Learning Objectives

	Module	Learning Objective	Topics Covered
1	**Brief history of systems Thinking**	• Summarize the key milestones and major contributors in the history of systems thinking and demonstrate an understanding of its evolution and impact. • Understand the basics of General Systems Theory (GST), Cybernetics, and Complexity Theory and identify their roles in understanding and analyzing complex systems. • Understand Boulding's pathways for advancing GST, comprehend his preference for hierarchical organization, recognize the nine levels of discourse, and grasp how increasing complexity leads to the emergence of new properties.	• Brief history of systems thinking • Systems thinkers • Development of systems approaches • General Systems Theory (GST) • Two pathways of General Systems Theory (GST) • Hierarchy of complexity • Nine levels of Boulding's hierarchy • Cybernetics • Complexity Theory
2	**Understanding the Big Picture**	• Identify complex challenges and comprehend how systems thinking can provide viable, sustainable interventions.	• Applications of Systems Thinking

	Module	Learning Objective	Topics Covered
3	**VUCA World/ Wicked Problems**	• Recognized the VUCA (volatile, uncertain, complex, and ambiguous) characteristics • Differentiate wicked problems from puzzle or tame problems. • Identify the characteristics of wicked problems and discuss the challenges that come when dealing with them • Comprehend the obstacles that decision-makers encounter when handling complexity and wicked problems.	• VUCA world • Dichotomy of problems • What are wicked problems? • Understanding wicked problem
4	**Regions of Complexity**	• Understand the classification and explain ‘organized simplicity,’ ‘organized complexity,’ and ‘unorganized complexity.’ • Explain why classical mathematical tools work for simple problems and why statistics/probability are effective for unorganized complexity. • Recognize the situations where systems thinking is most useful and appropriate. • Analyze and understand the various factors contributing to system complexity, including interconnectivity, multiple causes, environmental turbulence, randomness, emergent properties, non-linear relationships, and the role of conflict and power.	• Science and complexity • Distinction between organized simplicity, organized complexity and unorganized complexity • Regions of systems • Examining complexity

	Module	Learning Objective	Topics Covered
5	**Systems**	• Analyze and articulate how the concept of systems is applicable across different scopes and complexities in our universe. • Apply a systems lens perspective to identify, explain, and evaluate various systems • Define key characteristics of a system and demonstrate their understanding of a system by analyzing a real-world example • Distinguish between processes and systems by defining their key characteristics, understanding their different goals and representations, and explaining how processes link together within a system	• Systems are everywhere • Systems lens • Characteristics of a system • Process vs. system

	Module	Learning Objective	Topics Covered
6	**Open and Closed Systems**	• Define and differentiate between open systems and closed systems	• Open and closed systems
7	**Systems Thinking**	• Gain an understanding that systems thinking is transdisciplinary, aiming to comprehend complex situations through its core concepts and that various approaches are available for systemic interventions.	• What is systems thinking • What systems thinking is and is not
8	**Systemic & Systematic**	• Identify and explain the key differences between systematic thinking and systemic thinking.	• Systematic vs. Systemic
9	**Relationships**	• Analyze and interpret the dynamic relationships within complex systems and explain how these interactions define system behaviour and contribute to a deeper understanding of the system as a whole,	• Relationships • Set and Systems • Cognitive science of learning

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10	**Feedback & Loops**	• Describe the role of feedback in systems thinking, including how feedback loops influence a system's behavior by amplifying or balancing changes. • Understand the role of feedback, analyzing how feedback loops shape system behaviour and distinguish between balancing and reinforcing loops to evaluate their impact on stability and growth within a system.	• Feedback loops • Linear vs. non-linear • Two types of feedback loops (reinforcing and balancing)
11	**Emergent Properties**	• Explain how Emergent properties arise in complex systems, identifying key interactions and components that contribute to the emergence of new behaviors or characteristics that do not present in individual elements.	• Emergent properties • Examples of emergent properties
12	**Modelling**	• Understand the purpose and significance of modelling in systems thinking, including its role in simplifying complex systems, uncovering patterns, and providing insights for real-world interventions.	• Real world and thinking world • Modelling • Maps and territories

	Module	Learning Objective	Topics Covered
13	**Hard and Soft Systems Thinking**	• Understand the fundamental distinctions between hard systems thinking, which focuses on objective, data-driven problem-solving, and soft systems thinking, which emphasizes subjective, participatory approaches to improving complex situations. • Develop the ability to use models not just as representations of reality but as tools for fostering exploration, dialogue, and collaborative learning to drive meaningful improvements.	• Hard and soft systems thinking
14	**Multiple Perspectives**	• Evaluate complex issues through multiple perspectives to uncover hidden connections, foster collaboration, and drive innovative solutions while addressing real-world challenges.	• Blind men and the elephant • Why do we need multiple perspective.

	Module	Learning Objective	Topics Covered
15	**Network & Hierarchy**	• Understand networks and identify the key benefits of networks, such as distribution of resources, robustness, flexibility, and adaptability, while also recognizing potential risks associated with network structures. • Understand how systems exhibit hierarchy by recognizing the nesting of sub-systems within larger systems, along with the interdependence and stratification between different levels.	• Network • Benefits of network • Hierarchy • System of focus, wider system, sub systems
16	**Holistic Thinking**	• Explain the term holism in the context of systems thinking. • Compare analysis and synthesis (holism), and steps involved in each technique. • Realized how holistic thinking help in identifying the emergent properties of the system. • Understand that systems thinking involves both analyses (reveals how it works, knowledge), and synthesis/holism (reveals why it works the way it does, understanding).	• Holism • Analysis and synthesis

	Module	Learning Objective	Topics Covered
17	**Structures**	• Explain how the arrangement of parts, relationships, and governing rules within a system influence behavior, decision-making, and overall system dynamics. • Identify and analyze hidden structural elements, such as norms, power dynamics, and resource distribution, to understand their impact on system management and interventions.	• Structures
18	**Purpose**	• Distinguish between ‘purposeful' and ‘purposive' systems, understand their characteristics, and recognize how individual and system agencies interact to shape each other.	• Purposeful (intent) and purposive (behaviour)
19	**Systemic Perspectives**	• Define the five systemic perspectives (machine, interrelationships , organism, purposeful and societal/environmental. And describe how each perspective provides a unique approach to understanding and addressing complex problems.	• Five systemic perspectives • Machine • Interrelationship • Organism • Purposeful • Societal/environmental

	Module	Learning Objective	Topics Covered
20	**Leverage Points**	• Understand the Concept of Leverage Points and differentiate between low- and high-leverage points. • Distinguish and classify leverage points, including parameters, feedback loops, system design, and underlying intent.	• Leverage points • Places to intervene in a system
21	**Systems Mapping /Modelling Techniques (Optional)**	• Evaluate the purpose, utility, strengths, and limitations of some key system mapping/diagramming techniques by interpreting and analyzing them to represent different aspects of a system.	• Systems maps • Rich pictures • Causal loop diagrams (CLD) • Stock and flow diagrams
22	**Systems Thinking Approaches (optional)**	• Define the purpose of key system thinking approaches and identify their underlying systemic perspective.	• System Dynamics (SD) • Viable System Model (VSM) • Soft Systems Methodology (SSM) • Interactive Planning (IP) • Critical Systems Heuristics (CSH)

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