TRIZ – Systematic Inventive Problem Solving and Innovation

Duration: 2 Days

Description

TRIZ is a problem-solving methodology used to develop systematic, innovative, and sustainable solutions to complex problems. Unlike traditional problem-solving approaches, it focuses on identifying the contradictions underlying problems and developing solutions that eliminate these contradictions without leaving creativity to chance.

In this course, participants learn the fundamental principles of the TRIZ methodology, the 40 Inventive Principles, the Contradiction Matrix, Technical and Physical Contradictions, the Ideal Final Result approach, and systematic innovation tools. Through exercises conducted on real business problems, they develop innovative thinking and problem-solving skills.

To enable participants to systematically analyze complex business problems, identify the contradictions underlying problems, and develop creative, applicable, and innovative solutions using TRIZ tools.

Outline

1. Introduction to the TRIZ Methodology

- History and development of TRIZ
- Fundamental philosophy and principles of TRIZ
- Systematic innovation and creative thinking
- Differences between traditional problem solving and TRIZ
- Areas of use of TRIZ in the business world

2. Problem Definition and System Analysis

- Correct definition of the problem
- Distinction between problem, symptom, and root cause
- System, subsystem, and supersystem approach
- Functional analysis and system components
- Identification of undesirable effects
- Analysis of cause-and-effect relationships
- Limiting the solution space of the problem

3. The 40 Inventive Principles of TRIZ

- The fundamental logic of the 40 Inventive Principles
- Segmentation
- Asymmetry
- Preliminary Action
- Dynamics
- Inversion
- Intermediary
- Feedback
- Self-Service
- Adapting other inventive principles to business problems
- Generating alternative solutions with inventive principles

4. Technical Contradictions and the Contradiction Matrix

- The concept of technical contradiction
- Deterioration of one characteristic while improving another
- TRIZ's 39 engineering parameters
- Structure and use of the Contradiction Matrix
- Identifying inventive principles appropriate for contradictions
- Developing solutions through contradiction analysis
- Examples of technical contradictions from business processes

5. Physical Contradictions and Solution Approaches

- The concept of physical contradiction
- The need for one characteristic to have two different values at the same time
- Separation in Time
- Separation in Space
- Separation upon Condition
- Separation between system parts and the whole
- Exercises for resolving physical contradictions

6. Ideal Final Result and the Use of Resources

- The concept of ideality
- Ideal Final Result (Ideal Final Result – IFR)
- Defining the ideal solution
- The approach of maximum benefit with minimum resources
- Re-evaluation of existing resources
- Use of time, space, energy, and information resources
- Simplification and improvement of the system

7. Systematic Innovation with TRIZ

- Evolution trends of technical systems
- Development and maturity stages of systems
- Functional improvement
- Effective use of system resources
- Su-Field Analysis
- The 76 Standard Solutions approach
- Scientific effects and solution databases
- Identification of innovation opportunities

8. Practice

Prerequisites

There are no prerequisites for this course.