Course ID
TRIZ5DB
Course Duration
5 days

Course Title

TRIZ Workshop – Basic: With Optional MATRIZ Certification Testing

Related Courses

- TRIZ Workshop – Advanced: With Optional MATRIZ Certification Testing (TRIZ5DA, 5 days)
- TRIZ Workshop – Expert: With Optional MATRIZ Certification Testing (TRIZ5DE, 5 days)
- TRIZ for Systematic Innovation (TRIZ3D, 3 days)
- Innovate with TRIZ: Contradiction Analysis (UEC-TRIZ, 2 days)
- Unleashing Engineering Creativity (ENG-CREATE, 2 days)
- Unleashing Engineering Creativity - Comprehensive (ENG-CREATE3, 3 days)

Aimed At

TRIZ Certification Workshop Basic is aimed at engineers (all disciplines), designers, strategists, and others charged with creating innovative products, processes, systems, or services as well as those who work with them or manage their work.

Prerequisites

TRIZ Certification Workshop Basic has no formal prerequisites, but the course assumes an engineering, design/development, manufacturing, or technical background. However, we will be glad to tailor the course to other audiences.

Course in a Nutshell

TRIZ is the premier problem deconstruction, innovation, and solution generation methodology based on a 75-year study of 4+ million global patents. While experts can apply TRIZ to nearly any challenge, this workshop will help you create powerful innovations in such fields as product design and advancement, manufacturing (or other process) improvement, and other areas that involve systems of interacting components, from a wheel assembly to particle accelerator.

TRIZ Certification Workshop Basic covers: Where TRIZ comes from and why it is such a powerful and effective tool set, how systems increase in value as they evolve towards an ideal state, the application of functional modeling to fully understand the pertinent operational mechanisms, how to trim systems to increase their value, how to identify unused resource in and around your system that can be applied towards innovative solutions, transferring features

between competing engineering systems, how to search for solution from analogous systems in far-flung industries, contradiction analyses to a focus on performance limiting system contradictions and the identification of the correct innovation principles by which to resolve them, judging your solution concepts against term and quality, and an introduction to the Trends of Engineering System Evolution. The International TRIZ Association (MATRIZ) certification, recognized worldwide, is available.

Customize It!

Whatever the nature of your systems, processes, products, or services, we will customize the course to meet your specific goals. Here are some of the ways in which we can tailor *TRIZ Certification Workshop Basic* to help you get more out of it:

- Bring your own projects to class and work on them in teams.
- Add 'deep dive days' at the end of or a few weeks following the class to work on solution generation for challenges specific to your organization under the guidance of a TRIZ expert.
- Add/remove topics or shorten/lengthen the workshop to suit your needs.
- Schedule post-class follow-up consultation for continuing your in-house TRIZ implementation.

Learn How To

- Work together as a team to understand and implement the TRIZ concepts and techniques.
- Drive a system towards its ideal state
- Fully understand systems at a functional level
- Trim systems to improve their value
- Find analogous systems in industry to help solve your problems
- Transfer features between alternative engineering systems
- Use TRIZ to identify and overcome conflicting system requirements, aka design contradictions
- Apply system and super-system resources to solve challenging problems
- Employ proven inventive procedures to find innovative solutions to your product and process design challenges
- Judge your solution against term and quality to maximize your innovative output and establish a solution/product roadmap or pipeline

Course Outline

TRIZ Certification Workshop Basic **- Day 1: Introductory Concepts, TRIZ, and Functional Analysis.**

- **Introduction and Course Overview.** TRIZ historical context. Genrich Altshuller. *Teoriza Rezhinija Izobretatalskih Zadach* (TRIZ): The Theory of Inventive Problem Solving. System value, the S-Curve and ideality.

- **Functional Analysis.** Building to full system insight through: functional language, component analysis, and interaction analysis.

  Group activities: Practice creating functional language statements to represent various system relationships, develop a component list for your project systems, and develop an interaction matrix of those components.

TRIZ Certification Workshop Basic **- Day 2: System Trimming, Radical Trimming, Resource Analysis and Technical Contradictions.**

- **Functional Analysis (continued).** Building to full system insight through: functional Modeling.

  Group activities: Create a functional model of your engineering system.
- **Cause and Effect Chains (CEC).** Develop a deep understanding of what is causing your system to operate and perform in the manner it is.

  Group activities: Create a CEC of your engineering systems.

  Note: Functional models tell you how your system works, and CECs tell you why it behaves the way it does.

TRIZ Certification Workshop Basic **- Day 3: System Trimming, Radical Trimming, Resource Analysis, Feature Transfer.**

- **System Trimming / Radical Trimming.** Learn to advance system's value by removal of components while maintaining overall system functionality. Make leaps towards ideal systems by performing radical trimming and then develop designs to realize those systems.

Group activity: Trim your function model to increase its value and radically trim your system to leap towards a state of ideality.

- **Resource Analysis.** Discover and utilize hidden solution resources around and within your systems. Find and apply alternative interaction fields, and other unused component and energy resources contained within your system of analysis and hidden within the surrounding operational environment.

  Group activities:

  - ***Save the Titanic passengers***
  - ***Identify alternative interaction fields by which to support the radical trimming exercise.***

- **Feature Transfer.** Learn to transfer features between alternative engineering systems for the purpose of capturing the best attributes of each.

  Group activities:

  - ***Perform a feature transfer analysis for your class project.***

TRIZ Certification Workshop Basic **- Day 4: Function Oriented Searching, Technical Contradiction Development and Resolution.**

- **Function Oriented Search:** Learn to cut through the clutter by identifying alternative systems for the elimination of problematic components.

  Group activity: Identify alternative systems to help transcend contradictory system requirements.

- **Technical Contradictions:** Learn to reflect contradictory system requirements in compact and effective statements that focus your attention on the principal aspects of your problems. Understand how to recognize and capture contradictions in your functional models. Utilize the contradiction matrix to identify selected principles applicable to your technical contradictions. Apply the selected principles in solving your contradictory requirements.

Group activity: Identify and capture technical contradictions found in your class project and/or case study systems. Solve those technical contradictions.

- **Function-Oriented Searching**: Learn to cut through the clutter by identifying alternative systems for the elimination of problematic components.

  Group activity: Identify alternative systems to help transcend contradictory system requirements.

TRIZ Certification Workshop Basic **- Day 5: Physical Contradictions, Solution Evaluation and Trends of Engineering System Evolution Introduction.**

- **Physical Contradictions.** Model contradictory system requirements by way of physical contradiction statements and utilize the separation, satisfaction, and by-pass algorithm to solve your physical contradictions.

  Group activity: Identify and capture physical contradictions found in your class project and/or case study systems. Solve those physical contradictions

- **Solution Evaluation**. Learn to judge solutions by term (short, medium and long-term) and by quality (meeting system and organizational goals and requirements).

- **Trends of Engineering System Evolution.** An advanced introduction to the fascinating world of the Trends of System Evolution.

  Group activity: Using the introduced trends, generate possible innovations for your project.

  Group activity: Finalize group project reports.

- **Course Wrap-Up.** Group reports. Course review. Topics for further study. Questions and answers. Plans for future actions. Course critique.