

Innovation is a vital skill for a knowledge-driven economy. With competition becoming increasingly intense, INNOVATION is a “*must-have*” skill. It can be learnt using the systematic approach called Theory of Inventive Problem Solving (TRIZ). Originated about 70 years ago, TRIZ is a Russian methodology. It has remained a well-kept secret. This secret has finally reached you through the MyTRIZ Level 1 Workshop.

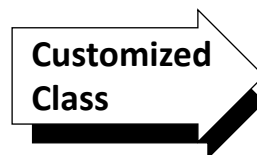
Malaysia TRIZ Innovation Association (MyTRIZ) in collaboration with International TRIZ Association (MATRIZ) will facilitate a two-day workshop to cover the history of TRIZ, share the insight of the profound discovery, provide in-depth knowledge into 6 techniques, and impart its application aspects. TRIZ is a catalytic program for employees to upgrade the problem solving and innovation skills to international certification standards.

TRIZ, recognized a powerful method for innovation, is embraced by many corporations namely 3M, Siemens, Samsung, Intel, Whirlpool, LG, GE, Boeing, KIA, Hyundai etc.

Course	TRIZ Level 1 Practitioner
Facilitator	MyTRIZ Certified Facilitator
Duration	2 days (9:00 a.m. to 5:00 p.m.)
Workshop & Certification fee	
Eligibility	Open to employees (min class size is 20 pax)

TRIZ Level 1 Practitioner Course Modules:

- Introduction to TRIZ methodology
- History of TRIZ and global adoption
- Structured Problem Solving Process
- Function Analysis
- Cause & Effects Chain Analysis
- Trimming
- Ideality
- S-Curve
- Trends of Engineering Systems Evolution
- 39 System Parameters
- 40 Inventive Principles
- Contradiction Matrix
- Actual Problem Resolutions



To be selected and arranged
9:00 a.m. – 5:00 p.m.

Company In-house Training Facility

Interested, please contact:

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All innovations emerge from the application of a very small number of inventive principles and strategies.

Day 1

Morning session (0900-1230)

- Introduction - What is Systematic Innovation/TRIZ?
- TRIZ methodology, history & adoption
- Tea break (1000-1030)
- Structured Problem Solving Process
- Function Analysis
- Cause & Effect Chain Analysis

Lunch (1230-1330)

Afternoon session (1330-1700)

- Trimming
- Tea break (1530-1545)
- Exercises

Day 2

Morning session (0900-1230)

- Recap Day 1
- Ideality
- Engineering Contradictions
- 39 System Parameters
- Tea break (1000-1030)
- Contradiction Matrix
- 40 Inventive Principles

Lunch (1230-1330)

Afternoon session (1330-1700)

- 40 Inventive Principles (cont'd)
- Tea break (1530-1545)
- Exercises & Assessment
- Summary & Wrap-up

Introduction to TRIZ methodology, history, and adoption

- TRIZ is a theory created to systematize processes and procedures related to innovation and creativity for solving inventive problems.
- In 1946, Russian Inventor Genrich Altshuller created TRIZ methodology consists of a theory, operating procedures and a range of tools. He aimed capturing the creative process in technical contexts, codifying it and making it repeatable and applicable in form of a theory of invention.
- The capability of inventing is usually considered a natural quality and not a process which may be systematized following scientific method. Altshuller disagreed with the idea. After conducting an exhaustive study of patented ideas, he deduced the general principles governing the evolution of technical systems underpinning his proposed theory of invention.
- TRIZ allows the analysis, the structuring of models and, finally, the solution of problems with a systematic approach based upon a series of subsequent stages and operating tools. Up to this day, the TRIZ methodology has proved to be the most efficient to solve inventive problems and one which may be learnt and used without needing an inherent individual creativity.
- Supporting the validity of the methodology is the diffusion in companies both in small and medium enterprises, as well as in several giants at a worldwide level e.g., 3M, BAE Systems, Boeing Corporation, Daimler Chrysler, Dow Chemical, Ford, GM, HP, Hitachi, IBM, Intel, Johnson & Johnson, LG Electronics, Motorola, Kodak, NASA, Nestlé, OTIS Elevators, Panasonic, Procter & Gamble, Samsung, Siemens, Toyota, UNISYS, Xerox, Whirlpool, Saipem and BTicino.

Structured Problem Solving Process

- Provide step-by-step process to define a problem, analyze current situation, identify possible causes, develop solutions, discuss ways to implement solutions, standardize the solution and monitor the progress.

Function Analysis

- People buy functions/functionality and not products. Understanding function and functionality at the most basic level is fundamental to successful application of TRIZ. Solutions change, functions stay the same. Knowledge classification by function allows immediate access to other's solutions.

Cause & Effect Chain Analysis

- A tool to refine a problem statement and drill down to find the root cause of the problem.

Trimming

- Typical engineers would add components to a system to enhance or solve a problem. The next tool after analyze the function of a system and understand the root cause is to eliminate components that may not be needed for the main function. The purpose is to search for a more ideal system that is less costly and has fewer components.

Ideality

- Each system evolves toward its ideal state. The ideal state of the system is where it has all the benefits without harmful effects or costs. The system is better, faster, cheaper, low error, low maintenance and so on. The ideal system is a system that does not materially exist (ideal system is no system), while its functions are achieved. In the absolute sense Ideality is impossible to achieve, but in a relative sense ideality is achievable.

Engineering Contradiction

- An engineering contradiction is a situation in which an attempt to improve one parameter of a system leads to the worsening (impairment) of another parameter. It can be reflected in a positive and negative interaction between two or more components

39 System Parameters

- System parameter is defined as a factor that defines a system and determines (or limits) its performance. The parameter typically describes the characteristics of a system. In TRIZ, 39 parameters typically set the characteristic of most systems.

40 Inventive Principles

- Inventive principle is a basic generalized rule that is accepted as fact, works in exactly the same way consistently and usually followed as a basis of reasoning or explanation of the invention. Altshuller screened 200,000 patents in order to find out what kind of contradictions were resolved by each invention and the way it was achieved. He synthesized down to 40,000 patents and from this he developed a set of 40 inventive principles.

Contradiction Matrix

- Systematic method of solving engineering contradictions without trade-off solutions. User identifies improving and worsening features of the engineering system.



Dr. Sajid Iqbal
Innovation Trainer

Dr. Sajid Iqbal, *CICOPS fellow, fellow IEEE, and fellow IEP*, did his PhD in Mechatronics Engineering from Harbin Institute of Technology (HIT), China. He received his BSc and MSc in Electrical Engineering from University of Engineering and Technology (UET) Lahore, where he is currently serving as Assistant Professor in the Department of Mechatronics & Control Engineering. He has presented his research work in many national and international conferences. He has also authored various journal articles and six reference books. His current research interests include nonlinear dynamics, chaos, electronic circuits, TRIZ, and education. He is also an HEC approved PhD supervisor.

Dr. Sajid is a *MyTRIZ certified Level-1 Instructor and Level-2 Practitioner*. He is passionate for developing people and promoting innovation culture and our economy.

Dr. Sajid has an association with various professional entities including Institution of Electrical and Electronics Engineers (IEEE USA), Society for Technical Communication (STC USA), Institution of Engineers Pakistan (IEP), Institution of Electrical and Electronics Engineers Pakistan (IEEEP), Pakistan Engineering Council (PEC), and Pakistan Association for Advancement of Science. Furthermore, he has won a car in Bazm-e-Tariq Aziz Show on Pakistan Television. He was awarded '*Young Investigators Award*' at 2018 Sage Assembly, USA and CICOPS (Centre for International Cooperation and Development) scholarship, Italy in 2019.