

# TRIZ

## LEVEL 1 PRACTITIONER

Transforming Your Challenges Into Innovative Solutions



GET TRIZ-CERTIFIED IN 2 DAYS

**Date:** 21-22 October 2018  
**Time:** 9:00 a.m to 5:00 p.m  
**Venue:** Hotel Mercure, Kota Kinabalu  
City Centre, Sabah, Malaysia  
**Certification Fee:** RM 1000 per participant

**E:** [event@myset.org.my](mailto:event@myset.org.my)

**T:** (+60) 3 8946 6451



[www.aeronad.com](http://www.aeronad.com)



[www.myset.org.my](http://www.myset.org.my)



Online Registration

[www.myset.org.my/triz-2018](http://www.myset.org.my/triz-2018)



## PRE-WORKSHOP IN CONJUNCTION WITH WRICET 2018<sup>†</sup>

Innovation is an important skill much needed in the new economy. With competition becoming increasingly intense, innovation is no longer a “nice-to-have” skill but a “must-have”. There is a way to learn INNOVATION in a systematic approach. The approach is called TRIZ or Theory of Inventive Problem Solving. TRIZ is a Russian methodology discovered about 66 years ago.

AERONAD in collaboration with MySET and UPM Holdings will facilitate a two-day pre-workshop to cover the history of TRIZ, share the insight of the profound discovery, provide in-depth knowledge into 6 techniques and impart the application aspect of the methodology. The workshop includes an assessment for certification as TRIZ Level 1 Practitioner. TRIZ is a catalytic program for employees to upgrade the problem solving and innovation skills to international certification standards.

TRIZ is recognized as one of the powerful methods for innovation. It is embraced by many corporations namely 3M, BAE Systems, Rolls Royce, Boeing Corporation, Daimler Chrysler, Dow Chemical, Ford, GM, HP, Hitachi, IBM, Intel, NASA, Samsung, HUAWEI, Siemens, Hyundai, KIA, Toyota, UNISYS and Xerox amongst others.

Course	TRIZ Level 1 Practitioner
Facilitator	MyTRIZ-MATRIZ Certified Facilitator
Date	21-22 October 2018
Duration	2 days (9:00 a.m. to 5:00 p.m.)
Venue	Hotel Mercure, Kota Kinabalu City Centre, Sabah, Malaysia
Workshop & Certification Fee	RM 1000 per participant
Eligibility	Open to all

### 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
- Level of Innovation

**REGISTER WITH US ONLINE:**  
[www.myset.org.my/triz-2018](http://www.myset.org.my/triz-2018)



### QUERIES:

**T: +(60) 3 8946 6451**  
**E: [event@myset.org.my](mailto:event@myset.org.my)**

<sup>†</sup>About WRICET 2018: Visit <http://myset.org.my/wricet2018>

# Course Agenda

PRE-WORKSHOP IN CONJUNCTION WITH WRICET 2018<sup>+</sup>

## DAY 1 (SUN 21 OCT 2018)

Morning session (0900-1230)

- Coffee break: Good Morning!
- 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
- Coffee break (1530-1545)
- Exercises

## DAY 2 (MON 22 OCT 2018)

Morning session (0900-1230)

- Coffee break: Good Morning!
- Recap Day 1
- Ideality
- S Curve Analysis
- Engineering Contradictions
- 39 System Parameters
- Tea break (1000-1030)
- Contradiction Matrix
- 40 Inventive Principles

Lunch (1230-1330)

Afternoon session (1330-1700)

- Level of Innovation
- Coffee break (1530-1545)
- Exercises & Assessment
- Summary & Wrap-up

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

## PRE-WORKSHOP IN CONJUNCTION WITH WRICET 2018<sup>†</sup>

### Introduction to TRIZ Methodology, History and Adoption

- TRIZ is a theory created to systematize processes and procedures related to innovation and creativity in the solution of problems. TRIZ is a Russian acronym which can be expressed in English as 'Theory for the Solution of Inventive Problems' and consists of a theory, operating procedures and a range of tools created by Genrich Saulovich Altshuller (1926-1998) from 1946, with the objective of capturing the creative process in technical and technological contexts, codifying it and making it repeatable and applicable, in short a proper theory of invention.
- The capability of inventing is usually deemed to be a natural quality and not a process which may be systematized with a scientific approach. Altshuller did not agree with the idea and started from the study of patented ideas to come up with the deduction of the general principles governing the evolution of technical systems underpinning the theory of invention he formulated.
- 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 any need for an innate 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, among which it is worth citing 3M, BAE Systems, Rolls Royce, 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, HUAWEI, Siemens, Hyundai, KIA, 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 ready access to other solutions.

## PRE-WORKSHOP IN CONJUNCTION WITH WRICET 2018<sup>+</sup>

### 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 with none of the harm or none of the costs. The system is better, faster, low cost, low error, low maintenance and so on (The ideal system consists of all positives and no negatives). The ideal system is a system that does not materially exist, while its functions are achieved (ideal system is no system). 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 any factor that defines a system and determines (or limits) its performance. The parameter typically describes the characteristics of a system. There are 39 parameters that 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.

PRE-WORKSHOP IN CONJUNCTION WITH WRICET 2018<sup>+</sup>



## Dr. Mohd Roshdi Hassan

Senior Lecturer, Universiti Putra Malaysia  
HRDF & MyTRIZ Certified Trainer

Dr. Mohd Roshdi Hassan is a Senior Lecturer attached to the Department of Mechanical and Manufacturing Engineering at Universiti Putra Malaysia. He obtained his PhD from University of Sheffield, United Kingdom.

Upon completing his PhD in 2006, he served as a Research Associate with Rolls Royce University Technology Centre. He was instrumental in establishing the Joint Awarded PhD Degree by Universiti Putra Malaysia and University of Sheffield in 2009.

Dr. Roshdi is also the founding member of the Aerospace Malaysia Innovation Centre (AMIC), a collaboration between UPM and Airbus Group, Rolls Royce, Composite Technology Research Malaysia (CTRM) and the Malaysian Industry-Government Group for High Technology (MiGHT).

He has proven records in leading research and innovation work as the Group Chief Technology Officer for CTRM and General Manager for AMIC. In addition, he was a visiting scholar at University of Bristol and University of Sheffield and recently appointed as a visiting scientist at Zurich University focusing on microgravity research.

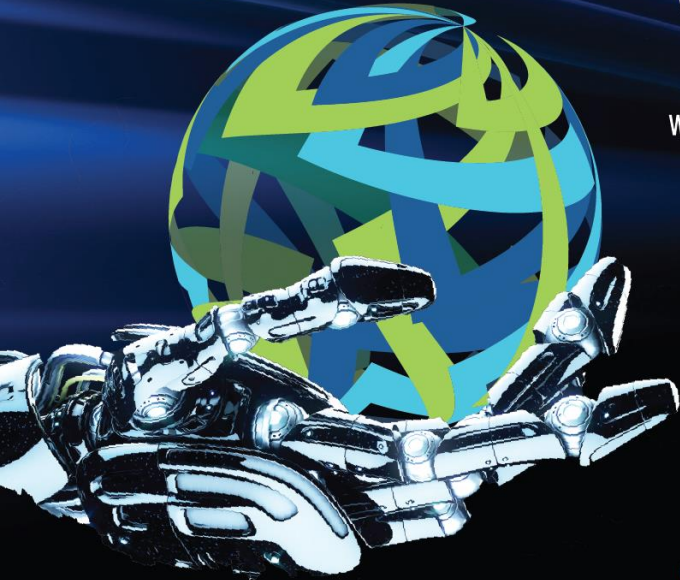
He has a strong interest in the application of TRIZ in the aerospace industry. Currently, he is collaborating with Advanced Manufacturing Research Center (AMRC) with Boeing in Sheffield for designing future aircraft landing gears.

Dr. Roshdi is a member of Malaysian TRIZ Association (MyTRIZ) and European TRIZ Association (ETRIA). He is also a certified instructor for MyTRIZ and Level 3 TRIZ Professional Certified by the International TRIZ Association (MATRIZ).



# WRICET

World Research and Innovation Convention on Engineering and Technology



# CALL FOR PAPERS

20 - 24 October 2018, Kota Kinabalu, Sabah  
WORLD RESEARCH AND INNOVATION CONVENTION  
ON ENGINEERING AND TECHNOLOGY

# 2018

## WRICET Conference

### Shifting Mindset Towards Industrial Revolution

## JOIN US TODAY

[www.myset.org.my/WRICET2018](http://www.myset.org.my/WRICET2018)

Organiser



Joint-Organiser

