One Day Workshop on **Student TRIZ level 1 – Session 1** Organized by IPFACE, Venture center & ATTI (Association of TRIZ and Technical Innovation, a member of MATRIZ)	
LEARN	• TRIZ is a Russian acronym and stands for "Theory of solving Inventive Problems" • TRIZ is the most predictable structured Inventive problem solving approach adopted by many companies (Indian and MNC's) across when traditional problem solving fail • Understand how structured Innovation evolved and the toolkit it offers • Engineers are hired to solve problems… Learn 40 unique ways of generating solutions at any given situation • Understand what inventive problems mean and learn how to define & solve inventive problems.
ORGANIZED BY	• IP Facilitation Center (IPFACE), Venture Center • Association for TRIZ and Technical Innovation (a member of MATRIZ)
FOR WHOM	Faculty and Students of Engineering and Management field
WHEN	**Saturday, 21 January 2017 | Time: 9 AM- 5. 30 PM**
WHERE	Training room, Venture Center, 100 NCL Innovation Park Dr Homi Bhabha Road, Pashan, Pune- 411008
ANCHOR FACULTY	Mr. Tito Kishan Vemuri (MATRIZ certified CEM representative; Founder chairman, Association for TRIZ and Technical Innovation)
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COST	**Rs 900/- per participant** Limited seats: **30** ; First come first serve All details will be available on: www.ipface.org/workshops.php Register online at: https://goo.gl/forms/wsA7QLyEiIWFeoxt1 (Registration closes on 18 Jan 2017 | Last date to make payment - 18 Jan 2017) Note:- • Fees paid is not refundable and non transferable under any circumstances. • Organizers reserve the right to accept or refuse or delay registrations so to optimize the composition of the group and hence maximize learning for all participants.

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INTRODUCTION AND OBJECTIVE

A proven way of differentiating a product or a process is by patenting the concept/solution. There are few methods that can help in this pursuit… a proven systematic approach and many unstructured approaches (person dependent).

For example, Thomas Edison (World's greatest inventor) with help of his labs tried ~1000 experiments to invent improvised carbon filament and patented. Above great invention and many inventions in the past were developed by using trial and error methods at an expense of TIME. In the present competitive world where robust pipeline of new/enhanced product offerings is a need to increase the market share, can Corporates/MSME/Start-ups afford to use above approach (knowing the fact that people change jobs) and be confident to develop technology in a predictable time frame?

An example: It took about a century to build USS Nimitz carrier (99K tons warship) from USS North Carolina (16K tons) that was accomplished by solving many contradictory requirements (like: angle of decent vs. safe landing) through trial and error methods. Can the CENTURY long product development cycle be reduced to FEW YEARS? YES by addressing a critical challenge: to identify and solve contradictory requirements.

Humans inherently have biases in their thinking. One of the complimentary conditions that limit personal creativity is psychological inertia (PI)… Our idea generation follow habits cultivated or techniques worked earlier and thus limits our ability to think creatively. One way to overcome PI is to ignore your first solution and demand for a second one. This leads to another critical challenge: how to come with multiple WoW solutions that are simple and novel?

TRIZ, a Russian acronym for "Theory of Solving Inventive Problems" developed by GenrichAltshuller, a Russian inventor, addressed above critical challenges. Altshuller developed a systematic approach, once understood and followed will empower toolkit for everyone to invent.

Corporates like Samsung, General Electric, Proctor & Gamble, Intel, Hyundai, to name a few, have adopted this structured methodology in technology development and addressed above critical challenges with success.

Objectives:

- Enables to identify contradictions and helps to solve with win-win solutions and expand technology envelope
- Empowers to overcome psychological inertia through multiple ways – Out of box thinking at any situation

How students benefit:

- Ability to generate 40 unique solutions to any given problem
- Identify inventive problems leading to inventive solutions that can be patentable

ABOUT TRIZ

How it works: Functions are the founding blocks of any engineered product. The basic function of telephone didn't change since Graham Bell invented Telephone. TRIZ's systematic approach starts with understanding present value of an engineering system by clearly defining functions of each component, their interactions, identify harmful and insufficient functions that are either to be removed/improved. This effort establishes a blue print for identifying opportunities towards improvement of an existing engineering system. Then the goal is to identify key disadvantages that helps us to define contradictions.

Technical systems are complex and consist of inter-related parts. Changing one part of the system may introduce a negative effect on the system's other parts. In other words, an improvement in one part of a system that impairs other parts of the system, or to adjacent systems, creates a technical contradiction – and making an invention requires removing the technical contradictions. In other words, define an inventive problem by identifying a right contradiction that is holding the technology development.

By identifying and solving the right contradictions following the structured approach and by overcoming psychological inertia, everyone can come with solutions that are novel and patentable. Once a contradiction is identified, find relevant inventive principles and initiate ideation. In other words, we approach to get from task to contradiction, from contradiction to the method, and method to a solution. Then we can walk step-by-step from the problem statement to the answer.

Critical differentiator of TRIZ is its ability to help identify and solve contradictory requirements over other methods like Theory of constraints or Value engineering.

PROGRAMME OUTLINE

- Understanding basic concepts of systematic innovation using TRIZ methodology
- Learn structured problem solving:
  - Lean to define problems
  - Define inventive problems
  - Come with multiple solutions to a given problem

COURSE INCLUDES

- Certification of Participation from Venture Center
- Access to restricted website with workshop slides and other material
- Tea and lunch at Venture Center cafeteria
- Free one-year reference membership for Venture Center Library

***Please note, the participants will have to arrange for their own travel/local transport and accommodation and dinners.**

- For accommodation (standard and budgeted hotels) please visit: http://www.venturecenter.co.in/puneguide/standard.php
- For accommodation (deluxe and luxury hotels) please visit: http://www.venturecenter.co.in/puneguide/deluxe.php
- For local transport details visit: http://www.venturecenter.co.in/puneguide/taxi.php

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ANCHOR FACULTY	
 **Tito Kishan Vemuri**	**Mr. Kishan**is a technology innovation coach. He is passionate about mentoring and facilitating technology innovations in India and beyond and groom inventors. He excels in mentoring inventors to grow their ideas into innovations and empower them to be either entrepreneur / intrapreneur. ***Profile:***Inventor and Technical Innovation mentor with strong technical expertise and experience in translating technical ideas into technology innovations. Experienced in developing Intellectual Property strategy across multiple product lines based on business strategy and translated strategy into action through Innovation workshops and mentoring. Demonstrated with a proven track record of facilitating "Close to thousand" inventions through Innovation workshops with some inventions incorporated in new products. Successful innovator track record with a granted patent and mentored 'Hundreds' of inventors and established a culture of Technical Innovation at world's largest Power generation OEM's India Engineering operations. ***Education:*** M.Tech, NIT Suratkal ***Certifications:*** • Certified six sigma Master Black Belt by GE, USA • Certified Design for Six Sigma Black belt by GE, USA • Certified IP Analyst ***Experience:*** 21 years of experience in IP Strategy development, Patent circumnavigation, Strategy execution, Robust Product design &development, Change leadership and Operational excellence – GEAviation, GE Power & Water and TATA Consulting Engineers ***Key accomplishments:*** • One granted US patent • Received GE management award for grooming talent in experiential teaching • As a process improvement coach to an ASEAN airline, developed& executed bottom line improvement strategy and brought predictability in Airline operations through operational Excellence program and change management. Enabled significant $xM approved • Certified 100+ GB's on DFSS and DMAIC ***Teaching:*** • Taught 600+ Greenbelts and 50+ Black belts in DMAIC & DFSS; • Taught to 300+ engineers on TRIZ level 1. Certified many on level 1. • Taught across Asia (India, Vietnam, Malaysia, Indonesia, Thailand, Singapore), Middle East (Dubai, Abu Dhabi)& South America (Chile)… to Indian / Multinational corporates and to Airline operators.

WORKSHOP SCHEDULE			
Timing	**Duration**	**Module title and description**	**Speakers**
08.45-09.15	30 min	Registration	
09.15-09.30	15 min	Introduction to the workshop	Dr. Premnath
09.30-10.30	60 min	Module 1: TRIZ evolution and its toolkit	VTK
10.30-10.45	15 min	Tea break	
10.45-13.00	135 min	Module 2: Breaking thinking barriers and problem identification Barriers to inventive thinking: Psychological inertia (PI) and means to overcome PI Identifying problems… 9 windows, why and what's stopping Team exercise… 39 engineering parameters Defining inventive problems	VTK
13.00-14.00	60 min	Lunch	
14.00-15.00	60min	Module 3: Understanding inventive principles 40 inventive principles	VTK
15.00-15.15	15 min	Tea break	
15.15-17.15	120 min	Module 4: Solving inventive problems using Inventive principles Exercise A case study on solving inventive problems… reducing product development cycle from centuries to years. Smart engineer to smart inventor How to leverage this learning in under-graduate project: (Project selection, execution and novel solutions) Next steps and workshop closure	VTK
17.15 – 17.30	15 min	Certificate distribution & Feedback collection	Dr. Premnath

ABOUT THE ORGANIZERS	
	IPFACE aims to promote awareness and adoption of intellectual property rights amongst entrepreneurs and MSMEs in India while also making accessible high-quality IP services and resources. IPFACE is a project of the Venture Center supported by the Ministry of Micro, Small and Medium Enterprises, Government of India and National Chemical Laboratory, Council of Scientific and Industrial Research, India. For more information about IPFACE services, visit www.ipface.org
	ATTI, Association for TRIZ and Technical Innovation is an educational Trust (non-profit) started to impart TRIZ and Technical Innovation in India. Being a member of MATRIZ (The International TRIZ Association), one of the primary charter of ATTI is to promote TRIZ among Industry and Academia across India. ATTI conducted India's 1st TRIZ Symposium on 4th August 2016 named "Bharat TRIZutsav 2016" that was sponsored by TATA Group Technology and Innovation Office, GE Global Research and MATRIZ. About 85 members from industry and ~10 members from Academia participated in this Symposium. Dr. Sergei Ikovenko, TRIZ Master and President, MATRIZ gave a keynote talk. Industry leaders from TATA's, GE GRC, Dr. Reddy Labs, 3M, Mahindra & Mahindra, Aeronautical Development Agency, LM wind power, GE Power and SABIC spoke in this event.

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