

*Two-Day Course On*

# Systematic Software (and Software Management) Innovation

27-28 Apr 2010

*Venue:*

Conference Hall  
Jalvihar Guest House



IIT Bombay  
Mumbai

## Theme

Following a period of rapid growth, the software sector is now beginning to find that there are too many companies offering too many similar products and services that customers find increasingly difficult to choose between. In this kind of market-place, companies have two real options; the first is that they embark on serious cost cutting activities; the second involves the introduction of competition-beating innovation into their products. The systematic creativity and innovation capabilities offered by TRIZ exist to offer world-class assistance in both areas. TRIZ is the outcome of the world's biggest study of innovative solutions from all sectors of human endeavour. Initial research - primarily focused on distilling successful strategies from engineering - has recently been expanded by a team of dedicated researchers at Systematic Innovation Ltd to encapsulate best practice from across the software engineering sector and integrating this into the global framework. Key findings from the research have been the uncovering of universal truths concerning the overall directions of system evolution (which are shown to be highly predictable) and the importance of eliminating compromises, trade-offs and contradictions in the evolution process. This latter element is of particular importance in the context of developing better software solutions since the industry to date has predominantly designed systems on the basis of win-lose trade-offs. In addition to teaching delegates the mechanics enabling systematic win-win design to eliminate compromises, the course will also feature three other elements of TRIZ specifically relevant to the design of competition beating software. These three are function and attribute analysis (a systematic means of managing the increasing levels of complexity present in software systems), subversion analysis (in which the course will look at the TRIZ method for designing paradigm-shifting robustness into software systems), and trends of evolution (in which the course will examine the predictability of software evolution and show delegates how to use this predictability to generate and protect next-generation solutions before their competitors).

## Who Should Attend?

- Software Developers, Architects and Engineers
- Computer Technology Researchers
- Project Managers and Strategists working in the software industry

## Benefits

All stages in the innovation process: Concept Design, Development, Testing, Organisational Systems

Patent strengthening, Patent circumvention, TRIZ and Systematic Innovation will produce stronger results in less time and considerably less risk.

Delegates will leave the course fully capable of using the main systematic innovation tools in their own work settings to deliver tangible benefits to customers and suppliers.

## Overall structure of the 2-day course:-

### Day 1

- 1) Introduction and Big Picture Overview of TRIZ for Software – the seven PERFECT pillars of the method; what determines 'good' versus 'bad' practice; law of requisite variety, law of system completeness. Comparison with other software improvement techniques – design patterns, XP, etc.
- 2) Function and Attribute Analysis – the tool by which we actively manage the complexity inherent in the design of state-of-the-art computer systems. Delegates will examine how the tool will help them to structure the design of software systems more effectively
- 3) Function Analysis exercise
- 4) Inventive Principles
- 5) 40 Inventive Principles for Software Exercise
- 6) Compromise Elimination Strategies – the world's strongest software solutions did not accept the trade-offs and compromises we take for granted. Delegates will learn the strategies by which others successfully achieved compromise-less solutions.
- 7) Compromise Elimination Exercise

## Day 2

- 8) Subversion Analysis – computer systems are increasingly expected to operate successfully under highly adverse environments and with users that are ever more likely to try and push them to the limits of their capability. In this section we will learn systematic strategies for designing ultra-high levels of robustness into computer systems.
- 9) Subversion Analysis Exercise
- 10) Resources – identification and exploitation of untapped resources in and around software systems
- 11) Ideality and Trends of Evolution – in this section we will examine the predictability of evolution directions in the software environment. We will demonstrate how future evolution steps are highly predictable, and as a consequence, how the TRIZ trend information is beginning to transform the world of software intellectual property.
- 12) Software Evolution Trends Exercises
- 13) Put It All Together - Review of Main Learning Points
- 14) Problem Solving Session - Delegate Problems

## Course Format

The course will be taught over two full days through a combination of lectures and delegate exercises. Delegates will be offered a discounted price copy of the book 'Systematic (Software) Innovation' (published October 2007), which will act as both handout materials, and also powerful resource for use after the course has ended.

## Comments from previous clients:-

- \* "Brilliant", "Relevant, practical with real solutions"
- \* "The biggest secret people have missed"
- \* "Every company will benefit from the techniques - and challenge to their culture"
- \* "Extremely powerful - will save hundreds of hours of wasted effort"
- \* "Extremely impressive"
- \* "We had eight people working on the problem for three months with no sign of success and then solved it in an afternoon with the help of a TRIZ trainer"
- \* "A day crammed full of Eureka moments. Excellent."

## Faculty

The course will be conducted by **Dr. Darrell L Mann** and **Dr. Prakash R. Apte**

### Darrell L Mann

Darrell is an engineer by background, having spent 15 years working at Rolls-Royce in various R&D related positions, ultimately becoming Chief Engineer responsible for the company's long term future military engine strategy. He left the company in 1996 to first help set up a high technology company before entering a programme of systematic innovation research at the University of Bath. He first started using Systematic Innovation in 1992, and by the time he left Rolls-Royce had generated over a dozen patents and patent applications. In 1998 he started teaching systematic innovation methods to both technical and business audiences, and to date has given workshops to over 3000 delegates across a broad spectrum of industries and disciplines. He continues actively use and develop the Systematic Innovation methodology, with the help of 30 full-time research staff. With over 600 systematic innovation-related papers and articles to his name, plus the best-selling 'Hands-On Systematic Innovation' books, Darrell is now one of the most widely published authors on the innovation subject in the world. He is a director of Systematic Innovation Ltd, a UK based innovation company with offices and affiliates in India, Malaysia, Korea, China, Japan, Denmark, Turkey, Australia, US and Austria.

For the last 10 years he has helped many of the world's top companies to create stronger IP, participating in the creation of over 400 inventions. He also consults regularly in the IP strategy domain helping companies to secure their medium and long term future. Featured in Who's Who in the World, Darrell is now recognised as one of the world's most prolific inventors.

His consulting clients include Infosys, Intel, Hewlett Packard, Procter & Gamble, General Motors, Hilti, Arçelik, Mahindra & Mahindra, ACC, Eli Lilly, Telekom Malaysia, Hong Kong government and, through EU-supported research and dissemination programmes, a wide roster of

SME and university organisations. His work involves a spectrum of applications from strategy development to IP creation to problem solving in both technical and non-technical areas.

Web : <http://www.systematic-innovation.com>

**Prakash R. Apte** is professor in EE department at Indian Institute of Technology Bombay. In the last 10 years he has conducted over 30 CEP 'open' and 'in-house' training courses on TRIZ.

## Course Fees

The course fee for the 2-day course is Rs. 10,000. For more than 2 participants from same division of an organization, a concessional fee of Rs. 8,000 will be levied for the 3<sup>rd</sup> participant onwards (maximum of 10 participants). The course fee is inclusive of tea (morning and afternoon) and lunch on both days of the course.

## Facilities

Accommodation is available on first-come-first-serve basis for a limited number of participants on advance intimation.

## Registration

Please fill the attached registration form and mail it along with the fees in the form of a demand draft **payable to "Registrar, IIT Bombay (CEP A/C)"**, to the course coordinator at the address given below:

*(It may be noted that no income tax is to be deducted at source from the course fee payments as IIT Bombay is exempted from the same.)*

Registration **ends** on Friday 16-Apr-2010

### Prof. Prakash R Apte

EE Dept, IIT Bombay,  
Powai, Mumbai 400 076, India

Fax : 022-2572-3707 (attn: Prof. Apte)

Cell : 98204-26774

Home : 022-2572-0426

Email : [apte@ee.iitb.ac.in](mailto:apte@ee.iitb.ac.in)

Web : <http://www.ee.iitb.ac.in/~apte>

REGISTRATION FORM

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TELEPHONE : \_\_\_\_\_ FAX: \_\_\_\_\_

EMAIL : \_\_\_\_\_

QUALIFICATIONS : \_\_\_\_\_ EXPERIENCE : \_\_\_\_\_ Yrs.

IIT Guest House accommodation required?\* Yes / No SEX : M / F

PAYMENT: No.: \_\_\_\_\_ Rs. \_\_\_\_\_

[Demand draft should be drawn in favour of "The Registrar, IIT Bombay (CEP A/c)".]

Date: \_\_\_\_\_ Signature of Applicant \_\_\_\_\_

**\*Guest House bill to be paid directly by participant.**

(XEROX ADDITIONAL COPIES OF THIS FORM, IF NEEDED).

**Completed form along with the demand draft to be sent to:**

*Prof. Prakash R. Apte, Course coordinator,  
Electrical Engineering Department,  
Indian Institute of Technology, Bombay,  
Powai, Mumbai 400 076*

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