

# TRIZ PRACTITIONER CERTIFICATION

## Recommendations for passing the test

- Applicants should have a sufficient command of science and mathematics
- Applicants should have good theoretical knowledge of all Examination Topics listed below.
- Having practical application of TRIZ methods will be advantageous.

## Candidate should provide the following documents with the application:

- Copies of any documents showing attendance at TRIZ training
- Copies of any TRIZ related papers or projects
- Any letters of recommendation

## Examination Topics

### I. ANALYTICAL TRIZ TOOLS

#### Function Analysis

- Definition of function
- Function types: main, auxiliary
- Useful, harmful, adequate, inadequate (insufficient, excessive) functions
- Concept of ideality
- Ideal engineering system

#### Trimming

- Concept of trimming
- Rules of trimming (ideal ways, ideality tactics)

### II. PROBLEM MODELING AND PROBLEM SOLVING

#### 1. Modeling problems as engineering contradictions (technical contradictions, system conflicts)

- Definition of an engineering contradiction
- Typical engineering contradictions
- 39 typical parameters
- Altshuller's (Contradiction) Matrix
- 40 Inventive Principles

#### 2. Modeling problems as physical contradictions

- Definition of a physical contradiction
- Methods of resolving physical contradictions

#### 3. Modeling problems as substance-field (S-F) models

- Concept of a S-F model
- Types of S-F models:
  - Incomplete
  - Complete
  - Chain
  - Double
  - Complex
- S-F analysis and the System of Standard Inventive Solutions
- 5 classes of the System of Standard Inventive Solutions

#### 4. Function modeling of problems

#### 5. ARIZ (ARIZ-85-C and later versions).

### III. LAWS OF ENGINEERING SYSTEM EVOLUTION

- Law of Increasing Ideality
- Law of Non-Uniform System Development
- Law of Transition to Supersystems
- Law of Increasing Dynamization
- Law of Transition to Microlevels
- Law of System Completeness
- Law of Increasing Coordination (Harmonization)
- Law of Shortening of Flow Paths
- Law of S-curve Evolution

### Test Structure and Grading

- Open-book.
- A test contains 10 problems divided into 5 groups:
  - Function analysis
  - Resolving conflicts/contradictions
  - Sufield analysis
  - ARIZ
  - Laws/lines of evolution.
- If a candidate demonstrates a faultless TRIZ analysis (i.e., correctly applied TRIZ concepts, rules, and algorithms), but could not come up with a specific concept of solution for that problem, his/her work is graded 90%.
- Passing final grade – 75%. All tests will be graded by 5 members of the TRIZ Certification Board. All grades will then be averaged to obtain the final grade.

### Test Administration

- Four times a year, at a designated location and dates as published on the AI website.
- Administered by a member of or by a person assigned by the Certification Board.
- Duration – up to 8 hours.

### Test Results

- Test results will be available within fourteen business days (excluding holidays) after the test date.

### Fee

- \$400 USD. If you fail the exam and wish to retake the exam, a new fee will be required.

### Recommended References

Altshuller, G.S. (1988). *Creativity as an Exact Science*, New York: Gordon and Breach.

Altshuller, G.S. (1999). *The Innovation Algorithm*, Worcester, MA: Technical Innovation Center.

Fey, V., Rivin, E. (2005). *Innovation on Demand: A New Product Development Using TRIZ*, Cambridge: Cambridge University Press.

Mann, D. (2002). *Hands-on Systematic Innovation*, CREAX Press.

Rantanen, K., Domb, E. (2002). *Simplified TRIZ: New Problem-Solving Applications for Engineers and Manufacturing Professionals*, Boca Raton, FL: CRC Press.

Terninko, J. Zusman, A., Zlotin, B. (1998). *Systematic Innovation: An Introduction to TRIZ (Theory of Inventive Problem Solving)*, Boca Raton, FL: CRC Press.

Royzen, Z. (2008). *Designing and Manufacturing Better Products Faster Using TRIZ*, TRIZ Consulting, Inc., Seattle.

Salamatov, Y. (1999). *TRIZ: The Right Solution at the Right Time: A Guide to Innovative Problem Solving*, Insytec B.V., The Netherlands, 1999.

Zlotin, B., Zusman, A., Philatov, V. (1999) *Tools of Classical TRIZ*, Ideation International Inc.

Altshuller, G.S. (1995). *And Suddenly the Inventor Appeared*, Worcester, MA: Technical Innovation Center