Comment by Nikolai Khomenko.
This document was prepared by G. Altshuller for free dissemination between people who would like to study Classical TRIZ. It was a duty for Russian TRIZ schools to supply students with this document. I believe this text could be helpful for those who are going to study Classical TRIZ deeply.
Russian name of TRIZ subjects and books recommended by G. Altshuller are kept in the text to facilitate communication about them.

Information on Teaching TRIZ

01.01.1988

1.

One of most important goals of TRIZ seminars can be defined as preparation of new TRIZ teachers. Although two weeks long workshops are apparently too short for achieving this goal, it is necessary to note that all difficulties can be overcome if a novice TRIZ teacher is developing his/her competence. This process should involve regular communication with high level TRIZ professionals, participation in new seminars, work with modern and classical TRIZ publications and eventually his or her own research in

A set of materials has been prepared for supporting novice TRIZ teachers: TRIZ – concise information and additions to it, materials on efficacy of TRIZ, annotated bibliography on science fiction literature[1] and the technology of creativity[2], guidelines for conducting research in TRIZ[3], information on TRIZ seminars organized by the State Committee for Patent Information, etc.

This information is also aimed to help newcomers in TRIZ. By no means should it be seen though as curriculum or lecture notes. These are just key ideas that are important for any TRIZ course that exceeds 20-30 hours.

Any TRIZ teacher is free to decide which ideas will be emphasized in his/her course, however at least an overview of all main parts of TRIZ is to be given in any course.

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Main parts of TRIZ, or rather present day TRIZ, are listed below. For any rapidly developing theory such a list should be amended and restructured at least once per year.

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[1] G. Altshuller. Chto Chitat Po NFL (Russian). Short Bibliography.
[2] G. Altshuller. Chto Chitat Po Tekhnologii Tekhnicheskogo Tvorchestva (Russian). Short Bibliography.
[3] G. Altshuller. Kak Vesti Zaniatia Po TRIZ. Altshuller's advices how to teach TRIZ efficiently.

List of main parts of TRIZ.[4]

Trial and Error Method and Its Modifications.

1. Traditional technology of inventive (non-typical) problem solving: Trial and Error Method. Disadvantages and evolution of the method.
2. Brainstorming. Application of the method. Comparison with the Trial and Error Method. Examples.

Мозговой штурм, правила работы, отличия от МПиО, примеры.

3. Morphological Analysis: advantages and disadvantages. Examples of morphological tables and boxes. Advantages of Fantogram [5] in comparison with traditional Morphological Analysis.

Морфологический анализ: достоинства и недостатки, примеры составления морфологической карты, отличия фантограммы от традиционного морфологического ящика.

4. Method of Focal Objects: the core of the method and rules of application, disadvantages, peculiarity of problems that could be solved by the method.

Метод фокальных объектов: суть работы, примеры, достоинства, недостатки, специфика решаемых задач.

5. Synectics. Main Rules of analysis. Four types of analogy used in Synectics.

Синектика. Правила проведения анализа, четыре вида аналогий, применяемых в синектике.

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[4] Today we should say Classical TRIZ in order to distinguish between Classical TRIZ and its modifications that have appeared since this material was written. (Comments of Nikolai Khomenko (N.K.))

[5] Fantogram is an attempt of Altshuller to integrate some of TRIZ instruments into traditional Morphological Analysis. Fantogram is used in Russian TRIZ schools as a part of the course of Creative Imagination Development. It can also be used as an instrument for developing practical skills in application of TRIZ Complete Scheme of Powerful Thinking (known outside Russia as multi-screen scheme or System Operator). (Comment of N.K.)

II. Объективные законы развития технических систем.

Objective Laws of technological system evolution.

6. TRIZ is a new technology of creativity. Postulates, theoretical background. Key features that make TRIZ different form the Trial and Error Method, methods of intensification of trials and errors so called - creative problem solving. History of TRIZ.

ТРИЗ - новая технология творчества: суть, идеологическая основа, принципиальные отличия от методов активизации перебора вариантов, история создания.

7. Tendency to increasing ideality – main vector of technological system evolution. Notion of Ideal Engineering (Technological) System.

Стремление к увеличению степени идеальности - главный вектор развития техники, понятие идеальной технической системы.

8. The Laws of Technological (Engineering) System Evolution. Approaches to revealing the laws. Main ideas. Examples.

Законы развития технических систем: тактика выявления, суть, примеры.

9. The General Scheme of Technological (Engineering) Systems evolution.

Общая схема развития технических систем.

10. Multi-screen Scheme of Talented (Powerful) Thinking[6].

[6] Also known as System Operator. In some papers Altshuller often called it Complete Scheme of Powerful Thinking. However he considered that it is necessary to add some more components to this scheme. This was later done in OTSM. (Comment of N.K.).

Многоэкранная схема талантливого мышления.

III. Стандарты на решение изобретательских задач механизмы действия законов.

TRIZ Standards for inventive (non-typical) problem solving: mechanisms of working of laws of engineering system evolution.

11. Su-Field Analysis. Examples.

Вепольный анализ. Примеры.

12. TRIZ Standards. History of creation and evolution:

- Principles: simple principles, Bi-principles, complex principles.
- Su-Field Analysis.
- Standards.
- Evolution of the system of Standards.
- Structure of the modern system of standards.

TRIZ Standards. Application rules.

Стандарты. История возникновения: приемы простые, двойные, сложные; вепольный анализ; стандарты, развитие системы стандартов. Структура современной системы стандартов. Как использовать стандарты.

13. Synthesis of Su-Field Models. Examples.

Стандарты на достройку веполей. Примеры.

14. Decomposition of Su-Field Models.

Стандарты на разрушение веполей. Примеры.

15. Standards for solving problems about measurement and detection. Examples.

Стандарты решения задач на измерение. Примеры.

16. Standards on application of Standards.

Стандарты на применение стандартов.

IV. АРИЗ - инструмент для решения нестандартных задач.

ARIZ as an instrument for solving non-standard problems.[7]

18. ARIZ: a system of methods for revealing and resolving contradictions. General Scheme of applying ARIZ. Examples. History of creation and evolution.

АРИЗ: программа выявления и разрешения противоречий. Общая схема работы. Примеры. История создания.

19. Examples of applying modern ARIZ to problem solving.

Пример разбора задач по современной модификации АРИЗ.

20. Notion of Ideality in ARIZ: Ideal Final Result (IFR)[8]. Examples.

Понятие идеальности в АРИЗ: идеальный конечный результат. Примеры.

21. Substance and Field Resources. Examples of application.

Вещественно-полевые ресурсы. Примеры применения.

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[7] Non-standard here refers to non-typical (inventive) problems that could not be solved by TRIZ Standard solutions system.

[8] It should be clearly understood by TRIZ learners that IFR in Classical TRIZ is a part of ARIZ. IFR and Contradiction are linked to each other and could not exist without each other. A common mistake of TRIZ Beginners is considering IFR separately from Contradiction. (Comments of N.K.)

22. Method of modeling with Little Creatures. Examples of application.

Метод моделирования маленькими человечками. Примеры применения.

23. Method “Step Back from the IFR”. Examples of application.

Метод "шаг назад от ИКР". Примеры применения.

24. Rules of transformation of a discovered idea for a solution into a general principle of problem solving.

Правила развития найденной идеи ответа в широкий принцип.

25. Typical mistakes in applying ARIZ to problem solving. Examples.

Трудности при анализе задач по АРИЗ. Примеры.

26. Logic of ARIZ evolution. ARIZ for tomorrow.

Логика развития АРИЗ, АРИЗы завтрашнего дня.

V. Information Banks for TRIZ.

27. Pointer of physical effects. History of creation and evolution. Structure of the Pointer. Application to inventive (non-typical) problem solving.

Указатель применения физических эффектов. История создания. Структура. Применение при решении изобретательских задач.

28. Examples of application of physical, chemical, geometric and other effects to inventive (non-typical) problems.

Примеры изобретательского применения физических, химических, геометрических и прочих эффектов.

29. Features of pointers of physical effects that belong to different generations. Logic of evolution of the pointers of effects.

Отличие указателей применения физэффектов разных поколений. Логика развития.

30. Modern collection of chemical and geometric effects.

Современный фонд химических и геометрических эффектов.

VI. Жизненная стратегия творческой личности.

Life Strategy of Creative Personality.

31. Main qualities (features) of a Creative Personality. Analysis of a typical biography of a Creative Personality.

Основные качества творческой личности. Разбор типовой биографии творческой личности.

32. Goal. Features of worthy and valuable goal. Criteria for choosing the goal. Examples.

Цель. Критерий достойной цели. Как выбрать цель. Примеры.

33. Rational life programme of a Creative Personality.

Рациональная программа жизни творческой личности.

34. Ability to defend own ideas and resist attacks and non-recognition by environment and “official science”.

Умение "держать удар". Примеры.

35. Ideal Life Strategy of a Creative Personality. Main stages.

Идеальная жизненная стратегия творческой личности. Основные этапы.

36. Advantages and Disadvantages of a Creative Personality Life Strategy and their influence on determining the evaluation criteria for a life of a Creative Personality.

Плюсы и минусы ЖСТЛ, определяющие критерий оценки жизни ТЛ.

VII. Применение принципов ТРИЗ вне техники.

TRIZ application to non-engineering domains.

37. Application of TRIZ to non-engineering domains. Examples of inventive problems and solutions in history, art, science, management, everyday life situation, etc.

Перенесение принципов ТРИЗ в нетехнические области. Примеры изобретательских задач и решений в истории, искусстве, науке, управлении, бытовых ситуациях и т.д.

38. The main Laws of Engineering System Evolution as objective laws of any system evolution. Examples of the laws, notions, applications of TRIZ to non-engineering contexts.

Главные законы развития техники как объективные законы любых систем. Иллюстрация законов, понятий и приложений ТРИЗ не техническими примерами.

39. Contradictions in Art. These could be illustrated by O'Henry's short stories. Structure of the story viewed from the TRIZ point of view.

Противоречия в искусстве. Показать, например, на рассказах О'Генри: разбор структуры рассказов с позиций ТРИЗ.

40. Synthesis of fairy tales. Choice of object. Synthesis of a conflicting pair. Synthesis of conflict. Action as a resource for the story (transition to different contexts). Modeling real life conflict, transition to the moral or social conclusion.

Синтез сказок. Выбор объекта, достройка конфликтующей пары, синтез конфликта, оживление действием (перенос в разные обстоятельства). Моделирование конфликта реальной жизни, переход на мораль (или социальный вывод).

41. Typical mistakes in fairy-tale synthesis.

Трудности, возникающие при синтезе сказок.

VIII. Опыт преподавания ТРИЗ.

Experience of teaching TRIZ.

42. System of TRIZ education. Typical curriculum for TRIZ education, ways of teaching.

Система обучения ТРИЗ: типовая программа, формы обучения.

43. Peculiarities of TRIZ education: work with the audience, finding new problems that can be used in training, discovering new and effective forms for training, involving students in the development of new materials.

Специфика проведения занятий по ТРИЗ: работа с аудиторией, подбор новых приемов, задач, втягивание обучаемых в процесс разработки новых материалов.

44. Peculiarities of TRIZ education for children.

Особенности проведения занятий в детской аудитории.

2.

Even a beginning lector knows about general TRIZ literature (books, brochures, articles). This literature is constantly enriched, but beyond it exist other brochures and manuscripts etc. A lector can be greatly benefited from using such secondary documents.

In 1987, in Cheliabinsk Regional Universal Public Library "TRIZ Literature Fond" began to form. Even today the fond continues to receive new studies and researches from past years, newly printed publications and works, which are very rare to find. In order to gain access to the fond, the lector must contact its organizer – Lubov Kojevnikova
(Cheliabinsk Regional Universal Public Library, Technical Literature Section. Lubov Kojevnikova.
60 Lenin Avenue,
454000 Cheliabinsk,
Russia,).

In general, all TRIZ materials gathered in Cheliabinsk Regional Universal Public Library should be of interest to modern lectors. With time, for a person who is constantly improving his/her qualification it is necessary to take an in-depth look at all of them. Here is the list of materials which should be looked at first. These materials are classified into the sections of TRIZ and for convenience are numbered (the first number is the number of the information letter/list, the second number is the number of the material itself).

The list of recommended literature will change with time – when the library stock will be enlarged. Today, however, the list consists of literature, which is known to the present day.

In the future, these works will be more developed. In particular, there are preparations for publishing the annotative bibliography of

all researches and other written TRIZ materials.

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25 More Documents About Efficiency of TRIZ. 1983-1985.

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[9] In the year 1994 Minsk TRIZ school in Cooperation with Inventive Machine Laboratory published a book G.Altshuller, I.Vertkin. How to become Genius… The book contain lot of materials about TRTL that G.Altshuller mentioned in this document.(Comment by Nikolai Khomenko)

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[10] TRTL is a Russian Acronym for the Theory of Creative Personality Development. This theory is a result of research of approximately 1000 biographies of Innovators who change the world. In their life appear lot of in common. Those findings were presented in a form of business game between Circumstances and Creative Personalities. G. Altshuller and I.Vertkin presented how Circumstances try to prevent Creative Personality from Innovation and what was done By Creative Personality to implement their Innovations. This game could be considered as a task book for Innovators and typical solutions they used to apply in their life. (Comment by Nikolai Khomenko)

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