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# **International Journal of Research in Commerce, IT, Engineering and Social Sciences**

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International Journal of Research in Commerce, IT, Engineering and Social Sciences is a leading international journal for publication of new ideas founded by engineers, academicians and corporate people. The IJRCIESS is not limited to a specific aspect of Commerce, Information Technology Engineering and Social Sciences but is instead devoted to a wide range of subfields in the IJRCIESS. While it encourages a broad spectrum of contribution in the engineering sciences, its core interest lies in issues concerning material modeling and response. Articles of interdisciplinary nature are particularly welcome. The research results and fundamental advancement are all aspects of Engineering Trends & Technology and various engineering discipline. IJRCIESS is a scholarly open access online Journal which helps to academic person as well as student community. IJRCIESS provides the academic community and industry for the submission of original research and applications related to various discipline.

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# INCORRECT PROBLEM FOR AN ABSTRACT

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## ABSTRACT

This study explores solutions to an abstract bicaloric equation, integrating the concepts of a Hilbert space and a self-adjoint operator, coupled with the caloric equation. The article establishes a crucial theorem that establishes a link between solutions to the bicaloric equation and the caloric equation. It further streamlines the problem by transforming it into related equations. The focus of this investigation is primarily on assessing the correctness and stability of these solutions. The logarithmic convexity method is employed to substantiate the findings and conclusions of the study.

**Keywords:** Bicaloric equation, Hilbert space, self-adjoint operator, theorem, logarithmic convexity, stability assessment.

## Introduction

In the realm of abstract mathematics, this study delves into the complexities surrounding the abstract bicaloric equation, its associated conditions, and the search for solutions. Problem: Find a solution to the abstract bicaloric equation:

$$K_+^2 u(t) \equiv \left( \frac{d}{dt} + A \right)^2 u(t) = 0, \quad 0 < t < T, \quad (1)$$

satisfying the following conditions:

$$\left. \begin{aligned} u|_{t=l_1} &= u(l_1) \\ u|_{t=l_2} &= u(l_2) \end{aligned} \right\} \quad (2)$$

Where:  $u(t)$  - abstract function with values in Hilbert space  $H$ .

$A$  - constant, positive definite, self-adjoint, linear, unbounded with dense domain of definition  $D(A)$  in  $H$ ,  $A^2$  DADCH operator operating from  $H$  in  $H$ , and  $l_1, l_2 \in [0, T]$ ,  $u|_H$  - restriction of  $u$  to  $H$ .

The validity of the representation is proven.

$$u = u_1 + (t - l_1) u_2.$$

**Theorem 1.** If  $u_1$  and  $u_2$  there are solutions to the caloric equation, then the function  $u = u_1 + (t - I_1)u_2$  is a solution to equation (1) and vice versa, for each given abstract bicaloric function  $u$  there are such functions  $u_1$  and  $u_2$  what

$$u = u_1 + (t - I_1)u_2$$

Proof. 1) If  $u_1$  and  $u_2$  solutions to the caloric equation, then  $u$  is a solution to the bicaloric equation

$$\begin{aligned} K_+ u &= K_+ [u_1 + (t - I_1)u_2] = K_+ u_1 + u_2 + (t - I_1) \frac{du_2}{dt} + A(t - I_1)u_2 = \\ &= u_2 + (t - I_1) \left( \frac{du_2}{dt} + Au_2 \right) = u_2 + (t - I_1) \cdot K_+ u_2 = u_2. \end{aligned}$$

Because  $\frac{du_2}{dt} + Au_2 = 0$ , that  $K_+ (u_1 + (t - I_1)u_2) = u_2$  i.e.  $K_+ u = u_2$ .

Using the operator again  $K_+$ , considering, that  $K_+ u_2 = K_+ K_+ u = 0$ ;

2) If  $u$  solution of the bicaloric equation, then there are such caloric functions  $u_1$ ,  $u_2$  what  $u = u_1 + (t - I_1)u_2$ .

To prove this statement, it is enough to establish the possibility of choice  $u_2$ .

Let's put:

$$u_2 = K_+ u,$$

$$u_1 = u - (t - I_1)u_2.$$

It remains to show that:

$$K_+ [u - (t - I_1)u_2] = 0.$$

Indeed:



$$\begin{aligned}
K_+ u_1 &= K_+ [u - (t - l_1) u_2] = K_+ u - K_+ (t - l_1) u_2 = \\
&= K_+ u - u_2 - (t - l_1) \cdot \frac{du_2}{dt} - A \cdot (t - l_1) u_2 = \\
&= K_+ u - u_2 - (t - l_1) \cdot \left( \frac{du_2}{dt} - A u_2 \right) = K_+ u - u_2 = 0,
\end{aligned}$$

from here:

$$K_+ u_1 = 0, \quad K_+ u_2 = 0.$$

The theorem is completely proven.

Using the view:

$$u = u_1 + (t - l_1) u_2 \quad (3)$$

The solution to the problems (1) – (2) can be reduced to solving the following problems:

$$\begin{cases} K + u_1 = 0, \\ u_1|_{t=l_1} = u(l_1). \end{cases} \quad (4)$$

$$\begin{cases} K + u_2 = 0, \\ u_2|_{t=l_2} = u(l_2). \end{cases} \quad (5)$$

Where:  $u_2(l_2) = \frac{u(l_1)}{l_2 - l_1} - \frac{u_1(l_2)}{l_2 - l_1}, \quad u_1(l_2) = \|u(0)\|^{\frac{l_1 - l_2}{l_1}} \|u(l_1)\|^{\frac{l_2}{l_1}}$

tasks (4)  $0 < t < l_1$  incorrect in the classical sense,  $a \quad l_1 < t < T$  correctly.

We will examine problems (4) for conditional correctness according to Tikhonov. Theorem 2. For

any solution to problem (4), the inequality holds.  $\|u_l(t)\| \leq \|u(0)\|^{\frac{l_1 - t}{l_1}} \cdot \|u(l_1)\|^{\frac{t}{l_1}}.$

Task (5)  $0 < t < l_2$  incorrect,  $a \quad l_2 < t < T$  in the classical sense is correct, similarly to problem (4), it can be examined for conditional correctness according to Tikhonov.

Let us prove a theorem characterizing the stability assessment of the solution to problem (1)–(2)

Theorem 3. For any solution to problem (1)–(2) the following inequality is true:

$$\begin{aligned} \|u(t)\|_H &\leq \|u(0)\|^{\frac{1-t}{1}} \cdot \|u(I_1)\|^{\frac{t}{1}} + \\ &+ (t-I_1) \left\{ \begin{aligned} &\frac{1}{I_2-I_1} \left( \|u(I_2)\| + \|u(0)\|^{\frac{1-I_2}{1}} \cdot \|u(I_1)\|^{\frac{I_2}{1}} \right)^{\frac{t}{I_2}} \cdot \|u(I_1)\|^{\frac{t-I_1}{1}}, \quad I_1 < t < I_2 \\ &\frac{1}{T-I_1} \left( \|u(T)\| + \|u(0)\|^{\frac{1-T}{1}} \cdot \|u(I_1)\|^{\frac{T}{1}} \right)^{\frac{T-t}{T}} \cdot \|u(I_2)\|^{\frac{t}{I_2}}, \quad I_2 \leq t \leq T \end{aligned} \right. \end{aligned}$$

This theorem is proven by the logarithmic convexity method [1].

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# AN EFFECTIVE WAY TO ASSESS STUDENT KNOWLEDGE IN THEORETICAL MECHANICS

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## **ABSTRACT**

It is important to use modern methods in the assessment of theoretical mechanics in higher educational institutions. The proposed method for fair determination of students' knowledge level and increasing their activity in classes using the method of interactive confused logical chain. By using the method for one subject, section and whole part of the science of theoretical mechanics, the possibilities of fair, transparent and quick assessment of students' knowledge level are shown.

**Key words:** theoretical mechanics, statics, kinematics, dynamics, force, equation, system of meeting forces, condition of analytical balance, couple force, force system located in a plane, instantaneous center of velocities, axiom, motion, speed, acceleration, rotational motion.

Nowadays, great changes are being made in the field of education all over the world. In particular, the number of students of higher educational institutions and the number of educational fields is constantly expanding and increasing. Our opinion is evidenced by the fact that 5 more state and non-state higher educational institutions have been added to the existing 3 higher educational institutions in Namangan region alone. Therefore, the increase in the number of students makes it necessary to provide them with quality education and to use methods of fair, quick and transparent assessment of the level of knowledge. Therefore, the issue of using the recently widely used confused logical chain method in science training is urgent.

"Confused logical chain" method has become one of the most effective methods for determining the level of students' knowledge of theoretical mechanics. This method is distinguished by its ease of use within one subject of science, in the process of conducting intermediate evaluation, and in the stage of conducting final evaluation. When using this method, the student is able to combine concepts related to the studied topic such as formulas, phrases, definitions, theorems related to the science of theoretical mechanics with information on several studied topics, and to match the correct ones from among them. should be able to. In this case, the set of facts related to the topic is presented to the attention of students in a case where the chronological order of cause and effect is confused (broken). Students should be able to correctly place the task in order.

Let's see the application of the method in the teaching process of the topic "Center of gravity of a solid body" of the statics department of theoretical mechanics. Information about quantities and formulas on the subject is provided by the method of confused logical chain. The teacher distributes copies of tables corresponding to the number of students in the audience to the students of the group. After studying the given table in detail, students write down the answer number for each question listed on the left and the corresponding number on the right. Then the teacher collects the answers from all the students, checks them and announces the results. Below is a table corresponding to the above topic.

**Determine compatibility:**

1	Show the expression of the theorem about three forces	1	If the lines of action of the system of forces acting on a rigid body intersect at one point
2	Show the conditions of analytical equilibrium of the system of opposing forces	2	$\sum F_{kx} = 0$
3	Show the formula for finding the amount of an effector of equal mass in a system of opposing forces	3	Equal to the diagonal of the parallelogram built on these equally acting forces, it is directed along the diagonal
4	What kind of system of forces is called a system of opposing forces	4	If a body is in equilibrium under the action of three non-parallel forces lying in the same plane, the lines of action of these forces intersect at one point
5	How to find the equal effects of two forces in different directions placed on the same point	5	$R = \sqrt{(\sum F_{kx})^2 + (\sum F_{ky})^2 + (\sum F_{kz})^2}$
6	Show the conditions of analytical equilibrium of the system of forces directed along a straight line	6	$\sum F_{kx} = 0$ , $\sum F_{ky} = 0$ , $\sum F_{kz} = 0$

**Correct answers (4,6,5,1,3,2).**

We will now use the method of entangled logic chain for a branch of theoretical mechanics - the branch of statics. The results of this score can be used to test students' knowledge in a nontraditional way to determine the level of mastery of the studied unit by the student and to determine midterm assessment scores. In this case, the number of questions will be more compared to the evaluation of one subject. Because the higher the number of questions, the higher the level of objectivity. At the beginning of the academic year, professors of the department create a bank of questions, which are regularly filled and improved. Below is the table covering all the topics of Statics of Theoretical Mechanics:

**Determine compatibility:**

1	What is the direction of the string tension force?	1	Perpendicular to the supporting plane
2	When is the moment of force about the point equal to zero	2	A pair of forces perpendicular to the plane, when viewed from the end of this vector, the force rotates the body in the counterclockwise direction

3	Show the analytical equilibrium equations of the system of forces located arbitrarily in the plane	3	$\sum F_{kz} = 0, \sum m_x(\vec{F}_k) = 0, \sum m_y(\vec{F}_k) = 0$
4	A light bulb weighing 45 n is hanging from the ceiling. What is the tension in the rope from which the light bulb hangs?	4	20 nm
5	What is the direction of the torque vector	5	If the line of action of the force passes through the moment center
6	Show the main term of statics	6	The effects of two bodies on each other are equal in amount and directed in opposite directions along a straight line.
7	State the axiom of reaction to action	7	When a system of forces located arbitrarily in space is brought to a center, it is exchanged with a principal vector equal to the geometric sum of the given forces and a principal moment equal to the geometric sum of the moments of the added pair of forces
8	What is the direction of the reaction force of the movable joint support	8	Depending on the hanging point along the string
9	What is the torque obtained from the pair of forces with a magnitude of 10 n and a force shoulder of 2 m relative to an arbitrary point in the pair plane?	9	45 n
10	Show the conditions of analytical balance of parallel forces in space	10	$\sum F_{kx} = 0, \sum F_{ky} = 0, \sum m_A(\vec{F}_k) = 0$

**Correct answers (8,5,10,9,2,7,6,1,4,3).**

As a result of using the studied method to determine the level of knowledge acquired by students in the entire field of theoretical mechanics, it is possible to quickly, transparently and fairly evaluate their level of knowledge. In this case, the teacher selects materials from the question bank from the departments of statics, kinematics and dynamics of science. Below is a table covering all sections of science. It is natural that the number of questions offered to students increases as the weight of the material increases. However, after a certain number of questions (40-50) using the method of confused logical chain causes a number of inconveniences. Therefore, it is necessary to use this method without increasing the number of questions to 25 when conducting the final assessment.



**Determine compatibility:**

1	Show the expression of the theorem about the change of the momentum of a material point	1	$x_c = \frac{\sum l_k \cdot x_k}{\sum l_k}, \quad y_c = \frac{\sum l_k \cdot y_k}{\sum l_k}, \quad z_c = \frac{\sum l_k \cdot z_k}{\sum l_k}$
2	State the law of free oscillating motion	2	$\vec{a}_B = \vec{a}_A + \vec{a}_{AB}$
3	Show the formula for finding the Coriolis acceleration	3	$\sum F_{kx} = 0, \sum F_{ky} = 0, \sum F_{kz} = 0$ $\sum m_x (\vec{F}_k) = 0, \sum m_y (\vec{F}_k) = 0, \sum m_z (\vec{F}_k) = 0$
4	State the rate of flat traffic	4	A point of a flat shape where the velocity is zero at a given time
5	Show the methods of determining the center of gravity of a solid body	5	Perpendicular to a smooth surface
6	Show the conditions of analytical equilibrium of a system of forces located arbitrarily in space	6	$\vec{a}_{kor} = 2 \vec{\omega}_e \times \vec{v}_r$
7	What is the direction of the smooth surface reaction force?	7	Symmetry, division, negative surfaces, integration, experience
8	What is the instantaneous center of velocity	8	If the angular velocity does not change during the rotation of the body
9	A wheel with a radius of 1.5 m is moving at a speed of 30 m/s on a level road. What is the amount of angular velocity?	9	$\frac{(x-8)^2}{81} + \frac{(y+4)^2}{144} = 1, \text{ ellips}$
10	Movement $x=9\sin 5t+8 \text{ m}$ , $y=12\cos 5t-4 \text{ m}$ find the equation of the trajectory of a point moving in a plane by the law	10	$\omega = 20 \text{ 1/s}$
11	State D'alambert's principle for a material point	11	Given the mass of a material point and the law of motion, the acting force is found

12	Define static definite problem	12	If the axis and the force lie in the same plane
13	Show the formula for determining the center of gravity of a line	13	$m\vec{v}_1 - m\vec{v}_0 = \vec{S}$
14	Show the formula for finding the acceleration of an arbitrary point of a body moving parallel to the plane	14	$x = c_1 \cos k t + c_2 \sin k t$
15	When is the moment of force relative to the axis equal to zero	15	If the number of unknowns in the given problem is greater than the number of equilibrium equations
16	State the first problem of dynamics	16	If we add the inertial forces to the series of active forces acting on the material point, the connection reaction forces, their geometrical sum is equal to zero.

**Correct answers** (13,14,6,8,7,3,5,4,10,9,16,15,1,2,12,11).

So, as a result of using the method of confused logical chain, students have the ability to organize the subjects they have studied in science, to divide them into components, to compare them with other parts of the subject, to understand information about the newly studied subject. skills are formed. Regular use of this method in lectures gives students the opportunity to systematically study science materials, organize, divide and differentiate what they have learned. As a result of the above facts, the level of knowledge of students will increase significantly. The activity of students in the lessons also increases. The ability of the teacher to objectively determine the level of knowledge of students in a quick way, to successfully conduct intermediate and final evaluations increases.

When planning to evaluate students' knowledge using the method of confused logical chain, it is necessary to pay attention to the following:

- it is necessary to expand the bank of questions related to science by topic.
- a bank of questions should be created separately for each subject, chapter and part of the science.
- it is necessary to create a bank of logical, easy-to-solve examples and problems related to the topics.
- in order to determine the level of mastery of the subject of science, it is necessary to compile the options of tables consisting of 5-10 questions at least equal to the number of students in the group.
- the professor-teacher offers the option of tables consisting of 10-20 questions to students for mid-term assessment.
- it is recommended to prepare tables of 15-25 questions for the final control assessment.
- Samples of the question bank and example-problem bank and the order of execution should be regularly published on the website of the department.
- the bank of questions and the bank of example problems should be updated every academic year.

In short, the method of the confused logical chain is one of the modern and convenient methods for determining the level of students' knowledge. This method is distinguished from other assessment

methods by the fact that it is especially effective in checking students' knowledge on one topic of science, on one chapter of science, and during midterm control.

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# ANALYSIS OF PARTICIPATION IN QUALITY MANAGEMENT OF "UZ AUTO MOTORS" IN THE PROCESS OF DIGITAL TRANSFORMATION.PROCESS

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## **ABSTRACT**

Active participation of the company in quality management is one of the main principles of management. For this, employees at all levels form the basis of the company and their active participation in the company's activities, and the use of their talents, can be the main ground for development.

The "Quality Policy" of "Uz Auto Motors" JSC is directed to the continuous improvement of all employees in all aspects of the company's activities, and its purpose is to satisfy the needs of all interested parties, product consumers, company employees, shareholders and society in general. .

For this purpose, a material and moral incentive system was created in JSC "Uz Auto Motors" to support the creative research, initiatives, aspirations of employees to increase their knowledge and continuous improvement. One of them is a handbook distributed to employees, which shows ways to encourage creativity, which we consider very important.

In order to achieve this goal, it is necessary to get into the habit of writing down in this notebook the thoughts and solutions to problems, even if they seem imaginary and impossible at first.

This sidebook is intended for rationalizers, as well as for all workers who want and can do something better, something faster, and something at a lower cost.

Writing down thoughts and ideas that suddenly appear in a notebook.

Use the sidebar to write down sketches, pictures, schematics, and possible options needed to solve the problem.

Turn a side notebook into a useful data notebook that helps you find the root causes of a problem by recording the collected statistics and analyzing them.

Use the side notebook to plan your rationalization activities, that is, to write down what, when and where to do, who to meet and do what, what to find and read, and so on.

Use a side notebook to jot down useful information from technical literature and magazines.

Use the side notebook to write down a list of identified problems and their causes to eliminate them based on a plan.

Use Sidenote to immediately write when you see or read effective and interesting solutions to similar problems in other networks.

Check the correctness of the processes, divide them into simple operations and write them down in a side notebook, make a block diagram that clearly shows the process, analyze whether everything is in order and whether there is an opportunity to improve something. Here is an attempt to look at the results of the work from the consumer's point of view.

And finally, use the side notebook to write down various interesting stories and anecdotes, because a good mood always supports research.

To the attention of rationalizers, simple methods of technical creativity are presented, which help to activate the rationalizing thought, to conduct the research purposefully, and to find the best optimal solution to the problem.

These methods can be supported in their workplace and activities, and what else can be improved? Where can costs be reduced by reducing costs? What new methods can be used to improve quality? How can materials and energy resources be saved and productivity increased? trying to find answers to the questions. The first proposal is not fully illuminated and may be less effective. The main thing is to have the courage to make the 1st offer.

Major achievements are ahead. Trying to provide the most correct, best and most effective rationalization proposal in the future.

Since human creativity is limitless, there is no limit to perfection and rationalizing thoughts. It leads to achievements by employees in this activity, which is difficult but interesting and of great importance for the company.

Every offer made by the employees will be a contribution to the development of the company and the prosperous life of our people.

A rationalization proposal refers to a technical solution that involves creating or changing the structure, technology or composition of products, and an organizational solution that is new for the company, which leads to the saving of labor, raw materials, fuel-energy and other material and financial resources.

The troubleshooting steps are as follows:

Initial stage:

searching and finding a problem, choosing a topic.

Study phase:

case studies;

collect information on all possible factors of the problem;

analyze the data on the problem and determine the causes that cause the problem.

Step of solution emergence:

summarizing thoughts, analyzing the causes and their impact on the problem, and finding the optimal solution.

Concretization stage;

making decisions and making proposals;

implementation of improvements;

test the effectiveness of the offer.

Stage of implementation of improvement;

modification and standardization of technical documents.

Simple ways to activate rationalizing thoughts:

Open your eyes, look and ask yourself!

Shouldn't you stop doing this?

Couldn't we make it simpler?

Could you increase or decrease it a bit?

Can I shorten something?

Isn't there a better way?

Can't you replace it with another one?

What if it does the opposite?

Can something new be developed?

Techniques of technical creativity.

Brainstorming ("Brainstorming" method). Brainstorming is a method of summarizing different ideas to solve a specific problem.

One of the serious obstacles to creative thinking is often criticism of the given idea hesitation in giving the idea. In order to overcome this obstacle, the American psychologist Osborn A.F. developed the "Brainstorming method", which is widely used in the world. The essence of this method first of all prohibits criticism. Any given idea must be considered to a certain extent (even the most fantastic, clearly erroneous, even humorous ideas) because they create the basis for the emergence of the most realistic and valuable ideas. Osborn A.F. I know that some people are better at presenting an idea, while others are better at analyzing it. Working together causes them to interfere with each other. That's why the author divided the technical task solvers into 2 groups: "Fantasizers" and "Critics".

"Brainstorming" should be intended only to freely give ideas to the task of "fantasists". In this case, not only criticism, but also all kinds of pranks, squealing and the like are strictly prohibited.

The group of "Fantazyors" (5-10 people) consists of people with different education and expertise, who should be able to give several or even dozens of ideas in a short period of time (from 5 minutes to 1 hour). Along with giving new ideas, it is also important to make changes to the given ideas. All ideas and suggestions given must be taken into account. The results of the brainstorming method largely depend

on the group leader. The ideas gathered in this way are given to a panel of experts. They first sort out the feasible and the impossible, and then select the best ones. At the same time, they scrutinize every idea and try to find the "rational essence".

The main rules of "brainstorming".

State the problem clearly.

Brainstorm individually (where each person writes down their idea).

Lead a group brainstorm.

Make a clear note of all the ideas that are given.

Follow the rotation of ideas.

Don't be critical of the ideas being presented.

Every idea must be discussed.

Listen to other people's ideas.

Be positive about ideas.

1. Analyze each idea:

For clarification and better understanding;

To combine and separate the main.

## **2. Synectics**

Developing and perfecting brainstorming, American researcher Gordon W.D. suggests synectics.

Synectic creative groups (5-7 people) are made up of people of different professions or disciplines, of different ages and with different skills. Synectics is based on brainstorming, only it is carried out by permanent groups, because these groups work more efficiently than randomly assembled people who have mastered specific methods and gained experience.

Solving inventive tasks is based on turning the unfamiliar into the familiar, the usual into the unusual, that is, reducing psychological inertia by looking for a new perspective on the given problem. Making the unfamiliar familiar is learning and getting used to the problem. The opposite process, i.e. turning the usual thing into something extraordinary, is done using the following 4 similes.

Conditions and opportunities have been created by the top management of the company for the organization of quality circles and development of their activities in "Uz Auto Motors" JSC. Due to the extensive capabilities, the company has achieved international quality results. Including December 1999 - Certification of the quality system in accordance with the international standard ISO: 9001:1998.

November 2001 - Obtaining the Accreditation Certificate for the right to carry out calibration and repair work.

April 2003 - Certification of the quality system in accordance with the international standard ISO: 9001:2000.

June 2004 - Receiving the International Quality Summit New York International Award for quality, leadership, advanced technologies and innovation.



July 2004 - The test laboratory received an accreditation certificate.

February 2005 - awarding the diploma of the winner of the competition "Best product of 2004" for cars manufactured by "UzDEUavto" company.

August 2006 - obtaining ISO 9001:2000, ISO/FDIS 14001:2004, OHSAS 18001:1999 integrated management system certificate.

August 2009 – The company was re-certified as a company compliant with the requirements of the integrated management system ISO 9001:2000, ISO/FDIS 14001:2004, OHSAS 18001:2007.

September 2010 - obtaining the ISO 9001:2008 international certificate. November 2012 - ISO 9001:2008, ISO 14001:2004, OHSAS 18001:2007 compliant certificates.

December 2018 - The company passed re-certification according to ISO 50001: 2015. January 2019 - The company passed ISO 9001: 2015, ISO 14001: 2015 re-certification. August 2019 - The company received the GOST R ISO 9001: 2015 integrated management system certificate.

We are sure that increasing the quality results achieved by JSC "Uz Auto Motors" and achieving quality results in the industrial production companies of all Uzbekistan will contribute to the prosperity of our country and increase the well-being of our people.

The dynamics of the implementation of the program of localization of production of goods and materials based on local raw materials and products manufactured at JSC "Uz Auto Motors" [1]

Product type	Unit of measure	2018	2019	2020	2021	2022
Cobalt	Piece	37626	56211	79908	71082	101617
Nexia T-250	Piece	59343	73151	66402	31466	22245
Damas	Piece	34618	51824	51692	55068	72235
Gentra	Piece	33314	44508	50052	51061	87105
Spark	Piece	29092	24249	23003	6485	14464
Labo	Piece	7382	7288	9023	17308	20941
<b>Car parts</b>						
car seats	Set	201421	257313	280095	232502	318635
fuel tanks	Piece	201870	258235	280140	232721	318924
silencer	A thousand pieces	565,236	671,411	812,406	767,9793	1116,234
bumpers	A thousand pieces	282,618	439,000	532,266	516,641	751,385
panels	A thousand pieces	160,491	185,233	214,217	189,099	265,417

“Uz Auto Motors” автомо-биль we can see the types of products produced by the plant between 2018 and 2022. In 2018, the most "Nexia T-250" car (59343 units) was produced, while the "Labo" car was produced in the smallest amount (7382 units). Including Cobalt (37,626 units), Damas (34,618 units), Gentra (33,314 units) and Spark (29,092 units), car components: car seats 201,421 sets, fuel tanks 201,870 units, muffler 565,236 thousand pieces, bumpers 282,618 thousand pieces, panels 160,491 thousand pieces were produced. "Nexia T-250" (73151 units) was the most produced car type in January-December 2019. We can see that this indicator has increased by 23.7% compared to last year. In addition, in this year compared to last year, production of "Cobalt" car increased by 57.4%, "Damas" by 49.7%, "Gentra" by 33.6%, and "Spark" car increased by 33.6%. 4,843 units, and we can see that the production of "Labo" cars decreased by 94 units, the production of car seats increased by 27.7%, and silencers increased by 18.8%. In 2018-2019, we saw the Nexia T-250 as the most produced car, and by 2020, the Cobalt car has taken the lead as the most produced car (79,908 units). This leadership was preserved in 2021 (71082 units) and 2022 (101617 units). The production of Nexia T-250 in 2020 was 66,402 units, which represents a decrease of 9.3% compared to the previous year. In this year, the production of car seats was 2800095 sets, bumpers 532,266 thousand pieces, panels 214,217 thousand pieces. Also, 31,466 units of Nexia T-250 were produced in 2021, and 22,245 units in 2022. In 2021, 232,502 units of automobile components, including fuel tanks (a decrease of 17% compared to the previous year), and 767,9793 units of silencers (a decrease of 5.5% compared to the previous year) were produced. Production of the Spark car is set to decline sharply in 2021, down 62.9% from 2020. In 2022, compared to 2021, it increased by 123%. By 2022, 20,941 units of the "Labo" car were produced, the indicator increased by 20% compared to 2021, by 132% compared to 2020, by 187% compared to 2019, by 183%. In 2022, automobile components include: car seats 318,635 sets (increased by 37% compared to 2021), fuel tanks 318,924 units (increased by 37% compared to last year), silencers 1,116,234 units (45,000 compared to last year increased by 3%), bumpers were produced 751,385 thousand units (increased by 45.4%), panels 265,417 thousand units (increased by 40.3% compared to 2021).

**Dynamics of product production based on local raw materials according to the localization program [1]**

Companies	Unit of measure	2018	2019	2020	2021	2022
Small stamping parts for "Ansiz" XJ "Uz Auto Motors" JSC	A thousand pieces	1953,338	2880,987	2660,760	2673,405	4078,170
"Elektroapparat" XJ small stamping parts for "Uz Auto Motors" company	A thousand pieces	19924,043	37164,735	36452,412	44913,204	81971,209
Components for "AndijonMash" XJ "Uz Auto Motors" JSC	A thousand pieces	2539,339	4609,580	6385,824	9624,258	17128,312
Spare parts for the auto transmission of the Andijan Aeromechanics Plant	A thousand pieces	390,668	1728,592	1197,342	2218,926	4485,987



JV "Tapaz" avt. Brackets for	A thousand pieces	6055,346	9651,307	9206,230	10426,280	15170,791
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Table 2 shows the dynamics of product production based on local raw materials for the last 5 years under the localization program. If we analyze 2018, in this year small stamping parts for "Ansiz" XJ "Uz Auto Motors" JSC 1953,338 thousand pieces, small stamping parts for "Elektro-roapparat" XJ "Uz Auto Motors" company 19924,043 thousand pieces, components for "AndijonMash" XJ "Uz Auto Motors" JSC 2539,339 thousand pieces, spare parts for the auto-transmission of the Andijon Aviation Mechanics Plant 390,668 thousand pieces, "Tapaz" JV avt. brackets for 6055,346 units were produced. By 2019, the production of small stamping parts for "Ansiz" XJ "Uz Auto Motors" JSC will increase by 81.5%, the production of small stamping parts for "Elektroapparat" XJ "Uz Auto Motors" will increase by 86.5%, "AndijonMash" Production of components for XJ "Uz Auto Motors" JSC by 81.5%, JV "Tapaz" avt. We can see that the production of brackets has increased by 59.3%.

Small stamping parts for "Ansiz" XJ.si "Uz Auto Motors" JSC produced 2660,987 thousand pieces in 2020, 2673,405 thousand pieces in 2021, and 4078,170 thousand pieces in 2022. For "Elektroapparat" XJ "Uz Auto Motors" small stamping parts were produced in 2020 36452.412 thousand pieces, in 2021 44913.204 thousand pieces and in 2022 81971.209 thousand pieces. In 2020, 6,385,824 thousand pieces were produced for "AndijonMash" XJ "Uz Auto Motors" JSC, 9,624,258 thousand pieces in 2021, and 17,128,312 thousand pieces in 2022. Spare parts for the auto transmission of the Andijan Aviation-Mechanical Plant will be 1197,342 thousand pieces in 2020 (a decrease of 31% compared to the previous year), 2218,926 thousand pieces in 2021 (an increase of 85.3% compared to the previous year), and 4485,987 in 2022 thousand units (increased by 102.1% compared to 2021) were produced. JV "Tapaz" avt. brackets for 6,055,346 thousand pieces in 2020 (4.7% decrease compared to last year), 10,426,280 thousand pieces in 2021 (13.3% increase compared to last year), and 15,170,791 thousand pieces in 2022 (increased by 45.5% compared to 2021) was produced.

Below you can see the volume dynamics (in units) of manufactured products that replace imports in the Andijan region for "Uz Auto Motors" JSC. 201.3 mln. in 2018 by local companies working under the order of "Uz Auto Motors" JSC. Foreign currency was saved in the amount of US dollars. In 2019, this indicator was 257.2 million. amounted to US dollars, 55.9 million compared to the previous year. increased by USD or 27.8%. 280.1 million in 2020. US dollars (increased by 8.9% compared to 2019), 232.5 million in 2021. US dollars (decrease by 47.6 million US dollars compared to last year), and in 2022 this indicator will be 318.6 million. US dollars (increased by 86.1 million US dollars compared to 2021).

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# THE IMPACT OF MASS MEDIA IN PUBLIC LIFE

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## **ABSTRACT**

This article deals with the impact and influence of mass media in our lives, benefits and drawbacks, effects of violence in the media, and it is about how it will influence on public opinion.

**Key words:** mass media, impact of mass media, positive and negative sides, effects of violence in the media, internet.

We need to be aware that the majority of our judgments, convictions, and values are derived from what we already know to be true, our presumptions, and our own experiences. Because of our education and professional experience, we typically know what we need to do at work; nevertheless, in our daily lives, we rely on the media to provide us with the most recent information and news about what is significant and what we should be aware of. We rely on the media as a reliable source of news, entertainment, and education. However, because the mass media has such a significant impact on our children, teenagers, and society, we need to understand how it actually operates.

With the development of technology over the past 50 years, media power has increased rapidly. First came the telegraph, followed by radio, newspapers, magazines, television, and now the internet. Our civilization needs on knowledge and communication to function properly and carry out daily tasks including employment, recreation, healthcare, education, interpersonal relationships, travel, and everything else we need to perform. A typical city dweller typically wakes up, scans the newspaper or television news, commutes to work, makes a few calls, and eats meals with their family whenever possible. He then bases his decisions on the information he has obtained from the news, television, friends, family, financial reports, etc.

The most significant of all the media dissemination methods has been television. Thousands of images of violence, advertisements, celebrities, and other things are continuously bombarding us. In fact, it's estimated that a child sees 40,000 advertisements annually. But who controls the media— the corporations or individuals who influence our values, beliefs, and choices? Five large firms essentially control the majority of the Uzbek media, as follows, O'zbekiston, Yoshlar, Zo'r TV, Sevimli, My5. We adult generation receive 95% of our daily media from just main companies. They are the owners of the main theme parks, film studios, television and radio broadcast networks, as well as video news and sporting events. They also own integrated telecommunications, wireless phones, video game software, electronic media, the music industry, and more.

Years ago, there was more diversity in companies, but they have merged, so now there are just a few, and they have the power to shape the opinions and beliefs of us, teenagers, and children. So it's important to be aware of what your kids are exposed to every day and you should also try to look at things from different perspectives and not just from the one the media gives you.

The advertising that they sell and that we are exposed to generates billions of dollars for the media. We buy what we are told is good, and after viewing countless advertising, we and our friends both base our purchasing decisions on what we found online. They avoid reading newspapers and magazines since these forms of mass media reflect and work to promote a positive outlook on life. People are using the internet more frequently since it seems to reflect the genuine nature of people's lifestyles. It might be accurate in some circumstances, but it shouldn't be seen as the only reliable method of broadcasting. It's stuffed with exaggerations. These are the media's both positive and harmful affects. Based on the fashion that the media has forced on them, they purchase what they see on TV, what their favourite celebrities advertise, and what is considered acceptable by society. Whenever we watch TV or a movie, we frequently encounter scenes of violence and individuals inflicting harm on one another. The issue with this is that as we see it more and more, it can start to feel traumatic, especially for our kids. Children who are only beginning to mature and form their personality values and beliefs run the risk of becoming angry or losing their ability to distinguish between what they see as real and unreal. Those kids have been linked to excessive use of violent video games and war images. Another problem is that real war is used as a form of entertainment by the media, we should make our kids and teen aware that war is not a form of entertainment and that there is no win or lose like in video games, in real war everyone loses. In order to improve young people's knowledge, skills, and competencies in the field of information and communication technologies, it is therefore important to:

- 1) use computers and other modern technical tools as a didactic tool;
- 2) dispose of information published on the Internet and other sources of mass media; and
- 3) have knowledge of new information, facts, and data collection, sorting, and processing and apply it to the educational process and the ski industry.

The media, as we've already mentioned, greatly affects society and public opinion. They can affect public opinion in a number of ways depending on the objective. Senior citizens who could see the harm caused by media games therefore started to endorse the concept of regulating the use of these games and the time of children and teenagers.

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# TECHNOLOGY OF MAKING "BUKSA" DETAIL FOR RAILWAY WAGONS BY CASTING METHOD

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## **ABSTRACT**

The article presents a technology for obtaining a billet for the axle bearing housing of railway cars by injection molding according to burnt models.

**Key words:** Casting, cast billet, burnt-out model, injection molding, bearing housing.

In the conditions of Uzbekistan, the "Buksa" part, which is considered as the bearing housing of the wheel axle of railway wagons, is mainly brought from the Russian Federation. In recent times, localization programs have been used to obtain this detail by casting method. However, only the Tashkent Foundry-Mechanical Plant produces this part and it cannot cover the current need.

Therefore, in order to cover the existing need, the specialists of the Torakorgan Mechanical Plant and the scientists of the Namangan Engineering-Construction Institute developed the technology of making the above-mentioned detail by casting method.

During the development of the technology for the production of the detail zagotovka, the experiences acquired by the Tashkent Foundry-Mechanical Plant on the preparation of this detail were also studied. At the Tashkent Foundry-Mechanical Plant, the cast zagotovka of this detail was made from 20GL alloyed foundry steel in machine-made sand-clay molds. However, zagotovkas have many defects such as gas voids and access holes. To eliminate such defects, we suggest using special casting methods.

Various defects occur in steel castings due to a number of technological reasons. For example, it is poured into a mold over steel, there may be an entry cavity in its upper part, and gas bubbles around it, as well as bumps and cracks on its surface. In order to prevent these defects in castings, additional heated mold is installed on top of the mold. As a result, the resulting entry cavity and gas bubbles are transferred to the metal in the overmold. In addition, the uneven distribution of additives, such as R, S, S, in castings greatly affects its quality (accuracy). Often, these elements are 2-3 times more in the central and upper part of the casting than in the edge part, and less in the bottom. If these flawed castings are first annealed at a high temperature, and then almost leveled in composition by annealing at room temperature, other defects are cut out.

In order to obtain high-quality ingots from steel, it is very important to clean them from gases and slags and insert them straight into the molds. In this case, before the steel is taken out of the furnace, the furnace bars, ladles and molds should be set to meet the requirements. (Usually, the capacity of the most used small pits is 10-15 tons, the capacity of medium pits is 10-25 tons, and the capacity of large pits is

300-400 tons.) covered. A steel ring was put on it. This ring has two hook ears. At the bottom of the container is a cup made of refractory material, the opening of which is closed and opened with a refractory plug as needed. The stem of the plug is connected to the wing system. In the following years, buckets with shiber (fastener) adjusting the speed of metal pouring into the mold were also used. Metal molds are often made of cast iron. Its working surfaces are made conical so that the casting can be easily separated from the mold. The shape and size of the clips will depend on the material and size of the cast. For example, square and rectangular molds are used for the production of various rolls and balls, and cylindrical molds are used for the production of pipes. To obtain high-quality castings, before metal is poured into molds, the working surfaces are cleaned of metal drops, lubricated with special oil (for example, coal tar) and heated to a temperature of 80-120°C. In this case, when the metal is poured into the mold, the oil burns and forms a gas layer, which prevents the casting from sticking to the mold. The heating of the mold keeps the metal from overheating and ensures quality castings.

The chemical composition of alloyed casting steel 20GL is as follows: C=0.15-0.25%; Si=0.2-0.4%; Mn=1.2-1.6%; C=up to 0.04%; Up to P=0.04 %. In addition, taking into account the operation of the "Buksa" part under the influence of variable load during operation, it is necessary to take into account the mechanical properties of the parts made of steel of this brand (Table 1).

**Mechanical properties of 20GL steel at temperature T=20°C**

Assortment	Consistency limit, $\sigma_B$ , МПа	Yield strength, $\sigma_T$ , МПа	Relative elongation, $\delta_5$ , %	Relative narrowing, $\Psi$ , %	Percussive viscosity, KCV КДж/м <sup>2</sup>	Heat treatment
K25 castings	540	275	18	25	491	Finding at 880-900°C Release at 600-650°C
KT 30 casting	530	334	14	25	383	Finding at 870-890°C Release at 620-650°C
casting	500	300	20	35		Normalize
casting	550	400	15	30		Catch and release

It has been observed many times that there are defects such as gas voids (gas voids) and voids in the solidification (usadochnye ravky) in the castings obtained at the Tashkent Foundry-Mechanical Plant. In addition, deviations from the accuracy of the shape of the casting zagotovka due to defects in the assembly of molds were also observed.

During the study of the technical requirements for details and the experience acquired by the Tashkent Foundry-Mechanical Plant, measures were taken to eliminate the existing defects. That is, in order to ensure the accuracy of the shape of the cast zagotovka, it is suggested to take the cast in mold molds, and in order to eliminate the voids in the above-mentioned cast, it is proposed to cast under pressure in the burnable models.





Figure 1. Cast zagotovka



Figure 2. Penoplast model

The authors designed and prepared the mold structure from aluminum alloy. At the same time, the technology of filling the mold cavity from foam plastic was also developed. The first samples of cast zagotovka (Fig. 1) proved to be free from the defects listed above. At present, work is being carried out to test the machined part and to improve the technology of obtaining cast zagotovka.

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#### Scientific articles:

1. Original scientific paper (giving the previously unpublished results of the author's own research based on management methods).
2. Survey paper (giving an original, detailed and critical view of a research problem or an area to which the author has made a contribution visible through his self-citation);
3. Short or preliminary communication (original management paper of full format but of a smaller extent or of a preliminary character);
4. Scientific critique or forum (discussion on a particular scientific topic, based exclusively on management argumentation) and commentaries. Exceptionally, in particular areas, a scientific paper in the Journal can be in a form of a monograph or a critical edition of scientific data (historical, archival, lexicographic, bibliographic, data survey, etc.) which were unknown or hardly accessible for scientific research.

**Professional articles:**

1. Professional paper (contribution offering experience useful for improvement of professional practice but not necessarily based on scientific methods);
2. Informative contribution (editorial, commentary, etc.);
3. Review (of a book, software, case study, scientific event, etc.)

**Language**

The article should be in English. The grammar and style of the article should be of good quality. The systematized text should be without abbreviations (except standard ones). All measurements must be in SI units. The sequence of formulae is denoted in Arabic numerals in parentheses on the right-hand side.

**Abstract and Summary**

An abstract is a concise informative presentation of the article content for fast and accurate Evaluation of its relevance. It is both in the Editorial Office's and the author's best interest for an abstract to contain terms often used for indexing and article search. The abstract describes the purpose of the study and the methods, outlines the findings and state the conclusions. A 100- to 250-Word abstract should be placed between the title and the keywords with the body text to follow. Besides an abstract are advised to have a summary in English, at the end of the article, after the Reference list. The summary should be structured and long up to 1/10 of the article length (it is more extensive than the abstract).

**Keywords**

Keywords are terms or phrases showing adequately the article content for indexing and search purposes. They should be allocated heaving in mind widely accepted international sources (index, dictionary or thesaurus), such as the Web of Science keyword list for science in general. The higher their usage frequency is the better. Up to 10 keywords immediately follow the abstract and the summary, in respective languages.

**Acknowledgements**

The name and the number of the project or programmed within which the article was realized is given in a separate note at the bottom of the first page together with the name of the institution which financially supported the project or programmed.

**Tables and Illustrations**

All the captions should be in the original language as well as in English, together with the texts in illustrations if possible. Tables are typed in the same style as the text and are denoted by numerals at the top. Photographs and drawings, placed appropriately in the text, should be clear, precise and suitable for reproduction. Drawings should be created in Word or Corel.

**Citation in the Text**

Citation in the text must be uniform. When citing references in the text, use the reference number set in square brackets from the Reference list at the end of the article.

**Footnotes**

Footnotes are given at the bottom of the page with the text they refer to. They can contain less relevant details, additional explanations or used sources (e.g. scientific material, manuals). They cannot replace the cited literature.

The article should be accompanied with a cover letter with the information about the author(s): surname, middle initial, first name, and citizen personal number, rank, title, e-mail address, and affiliation address, home address including municipality, phone number in the office and at home (or a mobile phone number). The cover letter should state the type of the article and tell which illustrations are original and which are not.

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