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## AGRICULTURAL SCIENCES

### BASIC TECHNICAL CONDITIONS OF SUBRIGATION (In the conditions of the Republic of Karakalpakstan)

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*Abstract. The article deals with the selection of a favorable reclamation regime (order) in the irrigated lands of the Republic of Karakalpakstan and the main cases of application of bilateral (cubirrigation) management of groundwater.*

*Key words: subsoil water, soil, regulation, irrigation, collector;*

The main conditions for the selection of a favorable reclamation regime (procedure) and the application of bilateral (cubirrigation) management of groundwater in the irrigated lands of the Republic of Karakalpakstan.

As mentioned above, in the design of collector-drainage systems in the former Soviet Union, the value of the location of groundwater below 3 and 3.5 meters above the ground was accepted and groundwater mineralization was not taken into account. In this order, collector-drainage systems were built in the Republic of Karakalpakstan.

As a result, as a result of this error, the location of groundwater was forced to move to the so-called optimal level. This not only takes into account the condition of the groundwater table, but also takes into account the mineralization of groundwater.

The main purpose of the principle of introducing the optimal depth of groundwater is:

- ensure the optimal regime of moisture in the root layer of the soil;
- reduction of drainage placement depth, significantly reduces construction costs;
- provide distinction of primary drainage systems, helping them to be removed safely.

Optimal depth of groundwater means the creation of conditions for high yields at low costs of water and labor.

For two-way control of groundwater level, it is required to block the structures with some equipment in the drainage system. Their number depends on the unit of area measurement, the slope of the drain, the distances between the drains before blocking with any equipment, and then the differences in water level. In order to implement drainage flow management, it is necessary to restructure the collector-drainage network and establish the effectiveness of these measures. After economic calculations, the following two options were developed:

1. Restore the existing drainage network with an existing barrier divider to control the drainage flow.

2. Rehabilitation of existing drainage network without drainage flow control.

Two-way management of soil moisture is the creation of artificial soil moisture by creating trailers in drains and collectors in years of low water and moderate water supply. Often the need for additional hydration of the soil is based on the mismatch between the amount of incoming water and its consumption of total evaporation and its entry into the drainage system.

Bilateral groundwater level management is used in cases where wetting methods are ineffective. Groundwater level control is used in drying-humidification systems. Their schematic scheme differs from simple systems: the collector system serves for drying and at the same time for wetting the soil by controlling the groundwater level. Such

systems are called two-way control system, i.e. two-way control of soil water regime.

Water management in drainage and humidification systems is carried out by means of sluices installed in the last stator (gate) of the collector. During the growing season, when the groundwater level is at high points, the system works to remove excess water. After lowering the groundwater level to the drying norm in the pre-planting period (1.5-2.5 m), the sliding valve in the system is closed, the water is stopped and the next decrease in groundwater level is due to evaporation of moisture from the soil.

When lowering the water level in closed valves 20-30 cm below the ground, which is necessary for the growth of the crop within the norm, the water rises through the capillaries to the root layer and then the plant uses it. Thus, the collector plays the role of drainage to lower the groundwater level, and this system moistens it by creating a dam (dam) in the soil.

Barrier equipment is required in the drainage system to control the groundwater level. Their number depends on the unit of area, the slope of the drainage, the drop in water level before and after the barrier equipment, and so on.

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## CHEMICAL SCIENCES

### PLASTICIZER OILS AS RAW MATERIALS IN THE PRODUCTION OF INDUSTRIAL RUBBER GOODS

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*Abstract. In this work, the optimal version of the pilot batch of plasticizer oil from the III fraction of the II stage was manufactured in the conditions of the Fergana oil refinery.*

*Key words: extract, phenol, petroleum oils, olefin, density, viscosity, aniline point, toluene.*

In the production of industrial rubber goods, oils based on distillate and residual aromatic extracts of selective purification of oils, which are potentially carcinogenic products due to the significant content of polycyclic aromatic hydrocarbons (PAHs), are used as a raw material composition (until now). It was revealed that up to 60% of pollutants and substances hazardous to health are emitted into the air with the rubber of car tires rubbed into fine dust. In this regard, the content (PAH) is limited in rubber in accordance with Directive No. 2005-69EEC, which entered into force on 1.01.2010 [1,2].

We carried out work on the manufacture of a pilot batch of plasticizer oil and on testing their physicochemical and antiwear characteristics at the Fergana refinery.

The preparation process for this pilot batch consisted of the following stages:

- preparation of components;
- mixing of components;
- cooling the resulting mixture.

Samples from pilot batches were taken and analyzed from installation 37/1,2 at the Fergana Oil Refinery (FOR), the qualitative characteristics of which are given in tables 1 and 2:

№ o/n	The name of indicators	Raw materials III fraction	Raffinate III fraction I stage	Raffinate III fraction II stage	Extract III fraction II stage
1.	Kinematic viscosity at 100 °C, sSt	9,02	6,91	6,83	8,34
2.	Flash point, °C	210	198	194	190
3.	Refractive index at 50 °C	1,4930	1,4800	1,4765	1,5110
4.	Color on the calorimeter SNT, unit. SNT	8,0	6,0	4,5	>8,0
5.	Density at 20 °C, kg/m <sup>3</sup>	893	874	870	922
6.	Pour point, °C				32
7.	Sulfur content, % mass.				1,99
8.	Aniline point, °C				68,4

№ o/n	The name of indicators	Raw materials the remainder	Raffinate the remainder I stage	Raffinate the remainder II stage	Extract residue II stage
1.	Kinematic viscosity at 100 °C, sSt	18,18	17,43	17,64	16,96
2.	Flash point, °C	210	220	208	238
3.	Refractive index at 50 °C	1,4890	1,4860	1,4865	1,5100
4.	Color on the calorimeter SNT, unit. SNT	>8,0	8,0	8,0	>8,0
5.	Density at 20 °C, kg/m <sup>3</sup>		889	890	923
6.	Pour point, °C				41
7.	Sulfur content, % mass.				1,80
8.	Aniline point, °C				70,2

The quality of the prepared plasticizer samples is shown in table 3:

Sample № 1

Extract of III fraction of II stage - 4 %

Residual extract of II stage - 96 %

Sample № 2

Residual base oil - 40 %

Residual extract of stage II - 60 %

№ o/n	The name of indicators	Plasticizer oil		
		Norm	Laboratory samples	
			№ 1	№2
1.	Kinematic viscosity at 100 °C, mm <sup>2</sup> /s (sSt)	16-23	16,27	18,84
2.	Refractive index at 50 °C	1,5080-1,5280	1,5120	1,5030
3.	Density at 20 °C, kg/m <sup>3</sup>	927-967	922	920
4.	Pour point, °C	no higher 30	29	30
5.	Closed Cup Flash Point, °C	below 220	230	224
6.	Sulfur content, % mass.	at most 3,0	2,1	1,75
7.	Aniline point, °C	64-72	70	71,8



As a result of the tests, it was found that the obtained laboratory samples of the plasticizer oil meet the requirements of the standard indicators. Thus, an experimental batch of plasticizer oil obtained under laboratory conditions of the Fergana refinery can be recommended for transfer to operational tests in the production of rubber products.

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## POSSIBILITIES FOR OBTAINING CONSTRUCTION BITUMEN IMPROVED QUALITY IN FERGANA OIL REFINERY

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*Abstract. In this work, an analysis was made of an operating plant for the production of petroleum bitumen of type 19/3 with an approved feedstock capacity of 205 thousand tons per year of the Fergana oil refinery. As a result of the analysis carried out, a weighted tar and a overoxidized component (BN 90/10 bitumen) in ratios from 40: 60 to 60: 40 are recommended for obtaining compounded bitumen.*

*Key words: petroleum bitumen, paraffins, naphthenes, penetration, compounding, weighted tar.*

The maximum involvement of heavy oil residues in refining with the aim of deepening it is very important in the face of increasing competition in the oil product market, on the one hand, and against the background of increasing requirements for their performance, on the other. Refining oils of various compositions and with a wide spread in quality indicators, technologists are faced with the problem of obtaining high-quality bitumen. It is known that even a small change in the composition of raw materials (the content of paraffinic and aromatic hydrocarbons, asphaltenes and other components) has a huge impact on the quality of the resulting bitumen. The technological features of the operation of vacuum columns also make a negative "contribution" to the instability of raw materials: changes in the temperature regime and vacuum depth, fluctuations in the amount of "failing" circulating irrigation and loading of raw materials, insufficient efficiency of contact devices, etc. [2]. All bitumen at the Fergana Oil Refinery (FNPZ) is obtained by oxidation of tar. The technological process is based on vacuum distillation of fuel oil and subsequent continuous oxidation of the products of vacuum distillation with atmospheric oxygen in column-type apparatus. The tar obtained in the vacuum block of the combined plant for the production of petroleum bitumen is oxidized in six columns K-3 and K-8. The raw material is fed under the phase separation level, the bitumen is pumped out from the bottom of the columns (solid precipitates in the columns do not accumulate). Air for oxidation is fed to the lower part through the mother liquor. The oxygen content in the oxidation off-gases does not exceed 6% by volume. Oxidized bitumen can be obtained from the residues of almost all oils. The best oils are highly resinous (20-35% by weight of resins) and low paraffinic (up to 5% by weight of paraffins). The content of paraffins in oil processed at the Fergana refinery is 3.0-5.3 mass %, resins 8-11 mass %, asphaltenes 0.8-1.2 mass %.

With an increase in the depth of vacuum distillation, the content of paraffin-naphthenic hydrocarbons decreases, but the content of arenes, including bicyclic, well-dispersing asphaltenes, increases. The resulting bitumen is characterized by reduced penetration, penetration index, softening temperature and increased ductility [1].

The Ferghana oil refinery produces bitumen of the following grades:

- building - OB 70/30, OB 90/10;
- roofing - ORB 40/180, ORB 45/190.

Currently, there are several ways to obtain low-paraffinic raw materials for the production of bitumen. One of them is the activation of raw materials during vacuum distillation by introducing optimal amounts of special additives. The most effective way to improve the quality of commercial oil products is compounding. It is used to obtain

almost all mixed products of motor gasolines, diesel and boiler fuels, lubricants, etc. It is theoretically possible and expedient to use compounding, both for preparing raw materials and for modifying the properties of ready-made bitumen. For the production of building bitumen, a special type of raw material is needed: heavy, highly resinous oils such as Venezuelan and heavy Arabian ones [3].

In our case, when adding a mixture of Jarkak oils to fuel oil, 3% of the mass. extract of selective purification of oil fractions, an increase in the yield of vacuum distillate and a decrease in the content of paraffin-naphthenic hydrocarbons in the tar from 9.5 to 3.4% are observed.

Thus, to obtain compounded bitumen, weighted tar and a peroxidized component (OB 70/30 bitumen) can be recommended in ratios from 40: 60 to 60: 40.

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# ECONOMICS SCIENCES

## CONSTRUCTION QUALITY MANAGEMENT

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### *Annotation*

*Quality management is quite important factor in construction of new buildings and objects. This factor provides required level of quality of construction. It contains different types of control. They control quality of construction, building materials, engineering equipment, and process of building.*

### *Key words*

*Quality control, production and technological equipment, a complex approach, construction trusts, product quality, state standard.*

The environmental impact and the adoption of a decision on the preference for special rational behavior is called management. Product quality is a characteristic object of management, since it is characterized by continuous aspirations for optimal development and significant variability, which must be overcome, i.e. achieve the regulatory process.

Nowadays, the management of the quality of construction production is called:

- a) preparation of industrial contracts, readiness checks and the production process or provision of services;
- b) prevention of errors provided by communication information;
- c) development of long-term plans for quality, as well as the introduction of changes in the manufacturing process, which ensures the prevention of identified shortcomings;

All these categories cannot be imagined without the cooperation of all sectors and regulatory bodies of the enterprise. Such cooperation can be called a general system of quality regulation, as this guarantees a systematic approach to quality management, and also maintains the necessary level of quality of buildings and structures at all stages of their creation.

The quality management system for construction products is a set of measures, methods and technologies aimed at given economic foundations, that is, it is a continuous improvement in the distribution of the quality of products and labor, as well as methods of exposure, supply and increase its level.

We can say that quality management of construction products is the introduction and ensuring the necessary level of quality of buildings and structures during the design, construction and operation, implemented through regular monitoring and impact on the conditions and factors affecting quality of buildings and structures. To determine the required degree of quality of construction products, it is necessary to build proportions of quality in regulatory documents, and then in projects. The procedure for the creation, accumulation, research, content, application and amendment of regulatory documents defined by the quality indicators of design conclusions is considered.

The provision of product quality is a set of projected and ongoing measures that form the necessary conditions for the implementation of each phase of the whole investment period.

In order to obtain the necessary level of product quality, the necessary level of labor quality at each workplace and the quality of work performed at all stages of the formation of construction products is ensured.

Maintaining the achieved level of quality of construction products can be achieved by the development and implementation of measures to help maintain quality during the operation of buildings and structures at an accepted level for a specified period.

We can firmly say that under the supervision of the quality of construction, a system of measures is supposed to guarantee the monitoring of the implementation of project requirements, building codes and rules, with the mandatory establishment of audits of the nature of the presented requirements.

The place and time of the control in the technological process determines the need for systematic control, operational (accompanied by laboratory and geodetic), acceptance (with an assessment of the quality of construction and installation work) and inspection at the construction site.

The listed types of control are preceded by the input control of design estimates and technological documentation carried out by the services of the trust and construction management, as well as the input control of building materials, products and structures, which is carried out by management employees production and technological equipment with the involvement of laboratory services, if necessary, and self-monitoring carried out by workers, managers, team leaders.

Input, operational, acceptance and inspection types of control constitute quality control. Incoming inspection checks building structures, products, materials and engineering equipment for compliance with standards, technical specifications, requirements of working documentation, passports and other documents confirming the quality of their manufacture; compliance with the rules is also checked transportation and unloading. If necessary, materials and products are tested in the laboratories of building trusts.

Operational control is carried out on construction sites in the process of performing production operations or construction processes and should ensure the timely identification of defects and the causes of their occurrence and taking measures to eliminate and prevent them.

State standard. These instructions establish a general procedure for the quality control of construction and special works in the construction of buildings and structures for various purposes, being built in ordinary areas, in seismic areas, in the territories of mining and subsidence soils. These instructions are mandatory for construction and specialized construction organizations conducting construction, regardless of their departmental subordination.

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## LITERATURE SCIENCES

### THE KING'S WORK OF ALISHER NAVOI'S CREATION

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#### ANNOTATION

*This article is about the creation of "Hamsa" by Alisher Navoi, the great classical poet of the peoples of the Middle East, the sultan of the realm of words.*

*Keywords: Alisher Navoi, "Hamsa", Hussein Boykaro, Turkish, Persian, Ajam, Arabic.*

We know from history that one of the figures who left a deep mark in the cultural world of the centralized state of the Timurids was Alisher Navoi, a statesman and public figure, the sultan of poetic property. He is remembered as a great poet, who created many works during his life and fruitful creative activity, and is in the hearts of our people. Alisher Navoi's works are distinguished by their spiritual richness, charm and the fact that over the years they have taken a firm place in the hearts of people. Below we talk about the history of Navoi's masterpiece "Hamsa".

Alisher Navoi, who completed his construction work in 1481 and spent his earnings on educational institutions and mosques, appealed to the ruler Hussein Boykaro to release him from state and national affairs and create conditions for creative work in order to carry out the planned creative work. Because Navoi, who was busy with the official services of the palace, could not find time to write "Hamsa", which was his lifelong dream. As a result of many efforts, in 1483 Alisher Navoi decided to write "Hamsa" (five, five epics). Before writing this work, he went to his teacher Abdurahman Jami for advice. Of course, Jami encourages Navoi to embark on his creative endeavors, as he is well known for his diverse work and poetry. At that time, according to Abdurahman Jami, there was no writer in Turkish as strong as Navoi. The creation of Hamsa was an amazing event not only for the Turkic peoples, but also for the non-Turkic and Arab peoples. The creation of "Hamsa" also means that it is equal to the two great poets Nizami Ganjavi and Khisrav Dehlavi, who wrote "Hamsa" before Navoi. Abdurahmon Jami told Navoi, "Only you today are a poet who thinks fast and expresses deep thoughts. In fluency, your words are whole, and you are a hero in words. "

During the reign of Alisher Navoi, it became a tradition to write new major works based on a free analysis of the events that preceded Hamsa. Navoi has two goals in mind when creating his Hamsa. One of the goals was to create a great work in "Turkic" (ancient Uzbek), as in Persian-Tajik literature. Navoi's second goal was not to translate his earlier Hamsa into Turkish, but to create a masterpiece that would be in line with previous examples. That is why Navoi addresses himself in the epic "Farhod and Shirin" and emphasizes that it is not appropriate for the poet to repeat what was written by previous authors. Navoi, who has worked hard to create a perfect, great work in the Turkish language, works very hard and fast. In 1483, he completed the philosophical

and moral epic Hayrutul-abror (The Wonder of the Good). The epic is written with great skill. Navoi's eloquence is such that anyone who reads the epic receives spiritual nourishment from it.

When Alisher Navoi began to write Hamsa, both the king and the people did not stop addressing various issues. Therefore, on the eve of the end of the epic "Farhod and Shirin" in 1484, Navoi appealed to Hussein Boykaro to release him from all work. His writing required a lot of reflection, calmness, and the ability to gather ideas. In the second half of 1484, Navoi completed the epics Layli and Majnun and Saba'i Sayyar. In 1485, he completed the fifth epic of the work, "Saddi Iskandariy" (Alexander's Wall).

With a total volume of 54,000 lines, Hamsa is truly a great work in terms of ideological and artistic value. The fact that the work was completed in two years was an unexpected event, even for the author himself, a heroism that seemed impossible. Navoi cites two reasons why the work was written so quickly: following in the footsteps of great writers before him, his determination to repeat their heroism, and Hussein Boykaro's tremendous help.

Abdurahman Jami first acknowledges that the creation of Hamsa is a great positive event for his time and for world literature. According to him, the author of "Hamsa" writes in Turkish - a blessing for the Persians. If Navoi had written his Hamsa in Persian, there would have been no room for others to speak. Navoi's Hamsa made a great impression on his contemporaries, especially King Hussein Boykaro. Upon completion of the work, Navoi presented it to Hussein Boykaro. Hussein even asks Navoi to be the "piri" of the king. Alisher Navoi then cleverly said to the king: "We are all disciples of you, and you are a disciple of all the citizens of our country." Inspired by this word, the king led Navoi on his white horse. Alisher Navoi fainted on horseback. He will be picked up from the saddle.

Navoi's own assessment is probably the most accurate of the countless first and only Uzbek-language Hamsa reviews to date. Navoi does not consider his Hamsa to be the property of the Turkic peoples alone. He is considered one of the greatest works of world literature. According to Navoi, Hamsa is valuable in three ways. First, the poet narrates the most important ideas for his time in it by means of narrating various legends. Navoi's second noble goal in writing Hamsa was to create a great work of art for the Turkic peoples, to allow the Turkic peoples to enjoy the highest standards of fine literature. Because even among the Turkic peoples, there were many people with beautiful nature and pure intellect. Navoi likens world literature to a fortress. Nizami built fortresses on the treasures of this fortress. Khisrav Dehlavi surrounded the forts with palaces. But a city was also needed for castles and palaces. It was Navoi's Hamsa that was to serve as the city in this figurative fortress.

Completing Hamsa was Navoi's greatest dream, and he made a great contribution to world literature. With this heroism, Navoi knew that he would forever remain one of the greatest classics of world literature.

There are many poets and writers in the world, but each poet is interpreted differently by the centuries he created. Alisher Navoi, who considered Nizami Ganjavi, Khisrav Dehlavi and Abdurahman Jami as his mentors, is a classic poet who has made a great contribution not only to the literature of the Turkic peoples, but also to world literature with his prolific works throughout his life. To date, Alisher Navoi's works have been translated into many languages, so that all peoples have the opportunity to get acquainted with the spiritual world, culture, customs, experiences and way of life of the Turkic peoples by reading Navoi's works. This is the secret of the longevity of the works of Alisher Navoi, the sultan of the realm of words, and the fact that he is still loved and



read by people.

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## MEDICAL SCIENCES

### EFFECTIVENESS OF CONSERVATIVE THERAPY IN SECONDARY OPHTHALMIC HYPERTENSION CAUSED BY SILICONE TAMPONADE

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*Keywords: vitreous cavity, silicone oil, ocular hypertension*

**INTRODUCTION.** One of the most effective methods of treating retinal detachment is microinvasive vitreous intervention followed by tamponade of the vitreous cavity with silicone oil. Silicone oil has advantages in comparison with other tamponizing agents: the possibility of prolonged and more complete tamponade of the vitreous cavity; transparency of the tampon medium, the ability to monitor the state of the fundus in the postoperative period, the possibility of laser retinal coagulation in the postoperative period [1]. In some cases, early removal of silicone from the vitreous cavity can lead to a relapse of retinal detachment, or repeated hemorrhages in the vitreous cavity. In such cases, a forced measure is to prolong the period of tamponade. However, with prolonged presence of silicone oil in the vitreous cavity, a number of complications may develop, such as: the development of cataracts, keratopathy, silicone emulsification, glaucoma [3 - 9]. Glaucoma can develop after scleral fillings and parsclerectomy and without the use of silicone. However, it has been proven that when silicone oil comes into contact with various structures of the eye, changes develop that lead to an increase in IOP. The frequency of silicone glaucoma development varies depending on various reasons, the main of which is the period of tamponade. Even Cibis in 1965 showed that the frequency of its development is 2.2% after 6 months and 56% after 8 months after injection of silicone.

**PURPOSE.** Present our own results of conservative treatment of patients with secondary hypertension that occurred against the background of vitreous cavity tamponade with silicone oil (CM) 5000.

**METHODS.** A retrospective analysis of the case histories of 40 patients (25 (62.5%) men, 15 (37.5%) women aged 20 to 55 years; 40 eyes) who had secondary hypertension on the background of prolonged tamponade of the vitreous cavity with silicone oil with a viscosity of 5000. The group included patients after vitrectomy with primary retinal detachment. All patients underwent surgery using a standard procedure that included temporary perfluorocarbon liquid tamponade, circular laser coagulation, and vitreous cavity tamponade with a viscosity of 5000 CM. The period of tamponade was 6 months or more. High - grade myopia was observed in 18(45%), medium - grade myopia in 10 (25%), low - grade myopia in 7 (17.5%), and emmetropia in 5 (12.5%).

**RESULTS.** In 20 (50%) patients, an increase in intraocular pressure (IOP) was noted within 1 month, in 4 (10%) - within 1 to 3 months, in 6 (15%) - within 3 to 6 months, in 10 (25%) - within 6 to 12 months. After using a fixed combination of brinzolamide/timolol (hypotensive mode #1) in daily double instillation, a decrease in

IOP was recorded in 15 (37.5%) patients; IOP ranged from 14 to 19 mm Hg). After additional administration of the drug brimonidine 0.15% in daily double instillation (hypotensive mode # 2), IOP decreased in 16 (40%; IOP was from 15 to 20 mmHg). In patients whose IOP could not be compensated, latanoprost 0.005% was additionally prescribed in a daily single instillation in the evening (hypotensive mode # 3). In 7 patients (20%), IOP was between 17 and 19 mmHg. In two cases (5%), transscleral cyclophotocoagulation was performed, since it was not possible to compensate for IOP at the maximum hypotensive mode.

**CONCLUSION.** In most cases (95% of 40 patients), IOP compensation was achieved by a conservative hypotensive regimen, and in 5% of cases, transscleral cyclophotocoagulation was performed. The highest IOP figures and the intensity of hypotensive regimen were in patients with high-grade myopia.

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## PEDAGOGICAL SCIENCES

### THE ROLE OF MODERN PEDAGOGICAL TECHNOLOGIES IN THE TEACHING OF FINE AND APPLIED ART

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*Abstract. This article is aimed at developing the competencies of teachers of fine and applied art in the application of modern approaches and innovations in the educational process, the application of modern approaches, the formation of necessary knowledge and skills, as well as the use of modern teaching tools in their pedagogical activities.*

*Keywords: Education; competence; the science; art; applied art; innovation; talent; pedagogical technologies.*

Today, the world community is undergoing multifaceted transformations in all spheres of life, which requires a new approach to shaping the future professional. Changes in educational goals in our country and around the world correspond to the global challenges of ensuring human access to the social world. In particular, in the documentation on improving the education system, a competent approach is declared as an important conceptual example of updating the content of education. As the President of the Republic of Uzbekistan Sh.M. Mirziyoyev: "We mobilize all the forces and capabilities of our state and society so that young people have independent thinking, rich intellectual and spiritual potential, grow and develop in the world."

We need to educate our youth and realize their aspirations for science. To do this, we need to develop a system of preschool education, radically improve the material and technical base of secondary and higher educational institutions, and the quality of scientific and educational processes.

It is necessary to increase the prestige of universities, increase the number of non-governmental educational institutions, attract highly qualified specialists and increase competition. I think that giving our young generations the opportunity to go to several universities at the same time will strengthen their right to education.

Since the independence of the Republic, enormous changes have occurred in all areas, especially in the field of reforming the education system. In particular, the Education Law and the National Training Program adopted at the IX session of the Oliy Majlis of the Republic of Uzbekistan on August 29, 1997 are a good example. In these laws, along with other forms of upbringing of the younger generation, much attention focuses on the importance of aesthetic education and visual arts. Today, the development of our national spirituality is impossible to imagine without examples of fine art.

One of the principles mentioned in the Law on Education and the National Training Program is to identify talented and talented young people and ensure their full development. One of the main tasks of teachers who need to pay great attention to the development of creative talents of youth at all levels of the education system is to help young people

find and implement innovative ideas and ideas, talents and talents in a timely manner. Innovation is very important and represents new approaches developed in one system. They are born on the basis of initiatives and innovations that are promising for the development of educational content and have a positive impact on the development of the education system as a whole. In higher education, it is important to teach students the basics of fine and applied art, and much of the fact that teachers of fine and applied art depend on the educational process and the content of universities. Observational studies show that teachers who currently teach students in fine and applied art at universities are not well educated today. The main reason for this is the low level of inclusion of new information and pedagogical technologies in the educational process and the inadequate use of non-traditional teaching methods. Today, the process of higher pedagogical education is aimed at radically improving the training of future masters of fine and applied art, and only those who have modern knowledge, intellectual potential and advanced technologies can achieve their strategic goals by integrating national and universal values. The competitiveness of any country in the world market depends not only on the availability of natural resources, but, above all, on the systematic preparation of a highly educated and disciplined workforce capable of mastering the latest modern technology. Such opportunities provided to young people in the educational process give the young generation of young people a solid foundation for the full realization of their full potential, turning into professionals who will make a worthy contribution to the development and prosperity of society. It also requires the development of independent creative abilities of modern youth, skills and abilities to independently solve existing problems associated with the knowledge that they acquire. In particular, teaching non-traditional methods is very important when teaching students the fine and applied arts. High-tech teaching of all disciplines of fine and applied art, including painting, painting, composition, works of applied art, design, painting, teaching theoretical foundations, practical aspects of teaching future masters of fine and applied art. Development and implementation will play an important role in the careful preparation of these masters of fine and applied art for independent creative activity. In the current era of the introduction of new information technologies in various fields, the problem of creating sufficient conditions for the training of specialists who can apply them in their professional activities is becoming the leading role.

The 21st century was predicted by the world as a time of information and computerization. Indeed, hundreds and thousands of national, regional and global information systems and computer networks began to emerge with the "digital revolution". Many countries are moving towards the creation of an information society and even an information economy. A telecommunication system has been created worldwide. Of course, these processes will have a great positive impact on improving public administration, the development and functioning of the state, legal and democratic relations. That is why preparing future masters of fine and applied art to contemporary art is one of the most pressing problems of our time. It is well known that a teacher and his role are among the subjects that play an important role in educating the young generation as harmoniously developed people. Over the centuries, in our country, special respect for the teacher has been shown. In turn, much attention is paid to his training and skills, and he is in high demand. The system of continuing teacher education addresses the issues of self-education and training of students, the formation of a national culture in the educational process, the provision of highly aesthetic knowledge of young people in the field of teaching fine art, as well as the ability to master high art and fine art. One of the important factors in the training of qualified personnel is to improve the quality and effectiveness of education. Modern methods, forms and tools of instruction, gaming

technology, problem-based learning and non-traditional methods of independent learning play an important role in improving the quality and effectiveness of education.

At the same time, today's professors who are masters of their profession should be able to lead students with varying degrees of art, especially with modern knowledge of art, desire and will and education as a great artist.

Recognizing the importance and relevance of modern innovative pedagogical technologies in the training of future masters of fine and applied art, our government will continue to direct a sufficient share of the country's financial and material resources in education. We see the results of the achievements of our country and our compatriots over the years of independence.

Thus, in the training of future masters of fine and applied art, an important role is played, first of all, tradition teacher-student. establish close partnerships with a wide range of advanced teaching technologies, curricula and teaching materials based on international educational standards. the introduction of highly qualified teachers and scientists from foreign partner educational institutions for educational and pedagogical activities, master classes, continuing education courses. organize retraining and advanced training, work independently and teach them how to quickly and effectively use innovative pedagogical technologies; a) ensure world-class quality education - this is a professional and, if necessary, patriotic duty of responsible persons, including professors and teachers working not only in the field of fine and applied art, but also in all higher educational institutions.

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## THE ROLE OF PRAGMATICS INSTRUCTION IN ESP CLASSROOM.

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*Annotation. In most EFL/ESP classrooms, students are more likely to suffer from lack of communication skills which prevent them from interacting effectively with English speakers. As a result, they are perceived as rude and disrespectful. To overcome the problem, EFL teachers need to make them aware of pragmatics norms.*

*Key words: pragmatics competence, L2 community, cross-cultural misunderstandings, speech act, instruction, overgeneralization, negative transfer.*

It is true that, majority EFL teachers mainly focus on the achievement of grammar competence and communicative competence of learners, while the development of pragmatics competence is neglected in ESL classrooms. However, pragmatics competence is very essential skill which guarantees effective communication and immersion into a target language society and culture. One good description of pragmatic competence is "the ability to use language appropriately in order to achieve a specific purpose and to understand a language in a social context." [Jenny Thomas :1983] Knowing the use of sentence structure in the content is not sufficient to master in a second language, learners need to match utterances or sentences with contexts in an appropriate way. If learners wish to avoid cross-cultural misunderstandings, they need to develop pragmatic ability by considering social and cultural norms of the spoken community [Brown and Levenson;1987]. Otherwise, L2 learners fail to interpret intended meaning of speakers and to communicate effectively in a foreign language. Pragmatic incompetence may lead to confusion, embarrassment and cross-cultural misunderstandings and sometimes communication breakdown as well as the stereotyping of the second language learners as rude, insensitive or inept [Thomas:1983]. It is advisable to incorporate pragmatic instruction into English classrooms and give students more choices to practice speech acts.

L2 learner's pragmatic behaviors diverge from native speaker's norms, which is called pragmatic divergence. Ishihara and Cohen (2010) categorize five common causes of learner's divergence that lead to pragmatic failure: 1) negative transfer of pragmatic norms by relying on L1 norms, 2) limited grammar knowledge in L2 3) overgeneralization of L2 pragmatic norms 4) effects of instruction or instructional materials 5) resistance to using perceived L2 pragmatics norms [Ishihara and Cohen: 2010)]. The first four types of pragmatic divergence can lead to communication breakdown in L2 community. The fifth type of pragmatic divergence depends on learner's choice, although they are aware of pragmatic norms, they resist the L2 pragmatic norms due to the influence of strong sense of identity. I think most frequent divergences might be negative transfer and overgeneralization in pragmatics.

It is apparent that negative transfer of pragmatic norms has mainly impact on learner's pragmatic competence in EFL settings. It is defined that the influence of learner's knowledge of other languages and cultures on the pragmatic use is referred to pragmatic transfer [Kasper 1992]. There are positive transfer and negative transfer of pragmatic norms. Positive transfer relates to a learner's pragmatic norms are similar to a member of L2 community. Negative transfer may occur when a second language learner is not familiar with L2 pragmatic norms and apply their L1 knowledge when delivering message and discourse in target culture. This transfer of L1 pragmatic behavior might lead to negative communication or misinterpretation where target community is differ from L1 norms. For example, a Japanese learner of English was received a gift from an

American friend and saying, "Oh, I am sorry" rather than responding, "Thank you". Whereas in Japanese culture, "thank you" does not express enough sincere and s/he translates literally from what s/he would say in Japanese to English. English speaker would misunderstand why he is apologizing in this situation and hence it creates awkward situation between speakers and even sounds insulting.

As above-mentioned that negative transfer of pragmatic norms diverge learners from L2 norms. When language teacher come across this pragmatic failure in the classroom, teacher should provide more real life situations that help learners how pragmatic behavior differs from one culture to another or how is similar to each other. For example, teacher asks students how you would refuse someone's request in your native language. Students highly benefit from this task as they would get better understanding of literally translation from their native language to second language does not always work. Another task is that teacher should represent sample dialogues or situations and asks them to identify the reason of misconception between speakers. With assistance of this activity, learners realized the influence of negative transfer on communication and cause awkwardness and misunderstandings. It is emphasized that the role of teacher to make sure that students realize to convey delivered message in the community and consequences of their pragmatic behavior [Jiang: 2006]. Another factor of pragmatic failure is overgeneralization of perceived L2 pragmatic norms, which is the same phenomenon with overgeneralization of grammar rules where learners apply a certain rule, which they have learned to context in which it does not apply [Selinker:1972]. In terms of pragmatics, learners of a second language stereotypes or generalize the norms of L2 community and apply wrongly to all situations by neglecting social, geographical and situational variability in the L2. Some learners may apply acceptable pragmatic norms in one situation to another situation where this behavior is not appropriate. For example, American speakers tend to be direct and frank about things and this notion lead to generalize pragmatic norms when a foreign student asks English speaker how much money earns a month. The American would be reluctant to answer the question about asking salary, which seems to him too impersonal question, which results in communication breakdown. In order to avoid overgeneralization, teacher should incorporate awareness-raising tasks such as role-plays and counter-examples, which allow learners to reflect more authentic language use.



## PHILOLOGICAL SCIENCES

### USE OF INNOVATIVE TECHNOLOGIES IN TEACHING ENGLISH

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*Abstract. This article discusses using innovative technologies in project method of teaching foreign language. Moreover, this paper will show the effects of innovative technologies in the process of teaching a foreign language, their influence on improving the quality of students' knowledge, ways of effective introduction and approbation of this aspect through non-traditional forms of education are considered.*

*Key words: innovation, technology, Gamification, project based learning, problem solving, quizlet, Kahoot, imagination, creative thinking, self-reliance.*

The digital age has changed the conditions of life, formation and education. Everything changes around, and accordingly, the attitude towards learning must change. The content of education in a modern comprehensive school remains unilateral; state standards based on an objective approach are morally outdated. Many modern teachers point to the lack of a competent approach, focused on the individuality of the student. Education at school does not give students a clearly expressed positive motivation to choose a life path, interests and prospects. Now, in the 21st century, the role of international education is growing. To raise own culture, to develop and to go forward is a vital necessity of our century and the young state. The same vital necessity is the study of foreign languages in order to keep pace with the times. Today, knowledge of English opens a window into a large global world with its wide flow of information and innovations. [1]

The formation of linguistic and communicative competences is of equal importance when teaching a foreign language. With the growing requirements to the quality of specialists training, these competences have become essential qualifications. Communicative competence is the leading competence in the above-mentioned list, whereas it is, first of all, the key competence which determines the language command level. Use of innovational technologies in studying foreign languages gives students an opportunity of diverse means foundation of relation in foreign language. Studying a foreign language can give a chance to students to know the culture, history, achievements in science, literature of studies language. If in secondary schools pupils were studied a foreign language in practical level, it would give the possibility to higher schools to train students at lessons of an independent work, to use their knowledge in practical way. Methodology of teaching a foreign language has changed at the request of the society. [2]

Learning a language is always interesting to students as at least they may get new ways of communicating. But to provide an effective and useful lesson is not always easy. New methods of teaching give a lot of opportunities to English teachers. Gamification, project based learning, problem solving, role playing are some of new approaches which are used in English language classes. Even if you know several new technologies, it should be taken into consideration how the innovative way of training will give the result and how the students' learning temp will exceed.

Games can help with learning in a number of ways. Here are a few examples provided by Constance Steinkuehler, Professor in Education and Games at the University of Wisconsin-Madison:

- Games can help children learn challenging material. Good games designers think very carefully about how users will play the game. What will users do in the first 20 seconds, 2 minutes, 20 minutes? In this way, players get a sense of achievement as they progress and are motivated to keep going, even when it's challenging. This process is actually very similar to what teachers do in the classroom.

- Games provide a regular source of English language. It helps enormously to have real reasons for using English on a regular basis. This can be tricky if you live in a non-English-speaking country. Games are full of imaginary and real-life activities, and authentic language.

- Games get children actively involved. Children have to weigh up the options, make choices and determine the outcome of the adventure. This can be great for learning.

- Games can be a great source of motivation. Even the most reluctant learners tend to enjoy learning when it involves games. Researchers have found that children who are 'struggling' with reading in school are reading at a higher level and with much better understanding in games. Interest is crucial. When children are given texts and activities they care about they will keep trying, even when it's challenging, and become better readers. [3]

In this article we chose some innovative games used in modern classes of English language.

1. Quizlet. Quizlet is an online learning tool that lets you create flashcards, short tests and spelling Quizzes, you can take vocabulary lists everywhere or create one according to your language teaching needs.

2. Kahoot is a free game-based learning platform that makes it fun to learn, with Kahoot you can create your own quizzes and analyze the score at the end.

3. Quizziz makes it super-easy to create great quizzes in no time.

4. ClassMarker: ClassMarker's secure, professional web-based Testing service is an easy-to-use, customizable online Test maker for business, training & educational assessment with Tests & Quizzes graded instantly saving you hours of paperwork.

5. Pixtoon: The world's most popular and easy to use comic and storyboard creator.

Based on creativity, you can teach English through comics, definitely a nice way for students to become.

Work on the project is a creative process. The student independently or under the supervision of the teacher is looking for a solution of the problem, it requires not only knowledge of the language but also the possession of a large volume of subject knowledge, knowledge of creative, communicative and intellectual skills. The foreign language course project method can be used in the framework of the program material on virtually any topic. Work on the project develops the imagination, creative thinking, self-reliance and other personal qualities.

Also, the introduction of information technology in education is significantly diversifies the process of perception and mining information. Thanks to the computer, the Internet and multimedia students have a unique opportunity to master a large amount of information and its subsequent analysis and sorting. [4]

Times have changed and we have to change our methods too regardless of the audience you are teaching. When technology integration in the classroom is seamless and thoughtful, students not only become more engaged, they begin to take more control over their own learning, too.

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## 3D LEARNING ENVIRONMENT AS AN IMPORTANT INNOVATIVE TECHNOLOGY FOR ENGLISH LANGUAGE CLASSROOMS

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*Annotation. This article is devoted to the vital role of 3D learning in education system, especially in the branch of English language teaching and learning. It also informs learning process of English language and its vast effect in global communication. Furthermore, this article motivates learners due to usage of 3D learning and fosters the acquisition of twenty-first century abilities among students.*

*Key words: 3D learning, ICT, tech-device, Wi-Fi, application, innovative technologies, Internet, education system, teaching process.*

Currently, the status of English is assessed as it has become the language of social context, business, education, industries, political, media, library, communication across borders, and key subject in Curriculum and the language of imparting education. With the spread and development of English over the world, English has been learned and utilized by more and more people. Scientists define English as the language at the leading edge of scientific and technological development, new thinking in economies and management, new literatures and entertainment genre. Learning this language with new methods and up-to-date innovative technologies has a significant role.

It is obvious that over the last few decades growth in information and communications technologies (ICT) is discerning all over the globe. However, one of these technologies, 3D Learning, has been gaining a tremendous grand on the frequent usage of its gadgets in the classrooms for educational purposes as well as its other potentials to consume. So far, it has changed and revolutionized the world of language learning and teaching from worst to best, not with standing it is solely about a decade from its released day into public. In our today's world, it is vitally momentous for educators to handle students with access to the tech that tend to be part of their upcoming world, both in profound learning experiences and at work. Therefore, educators are required to be cognizant concerning the crucial role that digital technologies have in classroom instruction. And it is believed that as well as assisting and ameliorating students' learning, they can be beneficial to have a good perceiving of technological, mobile gadgets since they could be utilized as tool to broaden teaching. 3D Learning is the innovative technology that can revolutionize the classrooms differently together with Wi-Fi equipped campuses. Here are some of them:

1. Widely used textbooks and handouts are claimed as costly and waste of paper. So, replaces on these sources use involving dated data are the easy way of utilizing 3D Learning Environment to update information frequently without any headaches of recent textbooks purchasing and including waste of time. Initially, although 3D Learning Environment might seem as though they are precious, but taking into account the cost and time, one can realize that how fast they pay back.

2. Students are to handle Audio and Video materials rather than educators. Since they themselves will be in charge of playing the materials, they tend to decide how long to listen, when to pause, when to reply and as well where to focus their listening while the material.

3. It is clear that public speaking is vitally important skill. Therefore, 3D Learning

Environment is the best way to make better tools for creating and delivering effective speeches in front of the audience and there are many fascinating apps have been releasing for tablets that welcome to utilize to integrate documents, Power point like slide shows, videos, pictures and as well as customize apps onto presentations. Students have the scope to do live-time drawing, writing, animating and showing interactive experiences. Since students circle, outline and note in necessary points while their presentations, flexibility will be of some help for them.

4.3D Learning Environment makes students or learners to amplify their imagination and out-looking. 3D Learning Environment can easily print the data out. We should teach one of the biggest mistakes that we make is having a replacement traditional educating with the innovative 3D Learning Environment in the classrooms. What needs to be taken into account is the 3D Learning Environment is a teaching tool; we are unable to execute the role of a physical supervisor. So, basically it is an appropriate use of item when we guide individuals towards their achievements of the eventual targets. If we tend to consume 3D Learning Environment in our school, giving instructions for utilizing the equipment should not be missed. So, it is vitally essential to instruct them concerning utilization of the gadget amongst learners for their efficient purposes. In order for students to broaden their knowledge horizons they should not constantly share information with their peers at home, but extension by putting their stuff online publicly or for other classmates is considered as a better route.

5. With the help of Wi-Fi connections and web pages, students are highly likely being able to download, upload, share or collaborate.

6. An instant access to the web will be provided in order for doing some researches or access to the library of institutions' digital collections.

7. The 3D Learning Environment is the mainly presentation gadgets and are connected to large displays and projection systems. Although computers are good equipment in terms of delivering the classroom lessons, yet it is believed that 3D Learning Environment is outnumber many advantageous over PCs for utilizing them in education.

8. Since computer use plays an important role in our today's life with its increase in computer production and common everyday uses, students should have early preparations with the skills that will be of some aid for their benefit. Therefore, having 3D Learning Environment per individual ensures that they are to have crucial computer regarding skills needed for the future occupations.

As we are dwelling in the century of developed technology, many find necessity in the usage of updated kits for their benefits. It is believed that potential impacts of the 3D Learning Environment use being perceived in education nowadays, what might be achievements in the following years, and especially, the effect on educators who teach languages and also institutions including different age groups. In conclusion, 3D Learning Environment plays a great role to overcome classroom shortages and conundrums in which students might find hard to cope with and are the apt tech-devices to use them in the classrooms in order for learning to be enhanced.

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Enhance-Learning

## APPLYING AUTHENTIC MATERIALS IN TEACHING LISTENING

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*Annotation. This article is devoted to applying authentic materials in teaching listening and usage of authentic materials in listening courses could motivate students, draw their interests and stimulate them into language learning process. Additionally, authentic resources open the doors of real world in learning and acquiring target language. As a result, students can create language environment like native users and they are able to listen recordings for specific purposes. So, interesting authentic materials would develop learners' listening abilities in language lessons and language usage in natural world.*

*Key words: direct method, imitating, valuable source, interrelate, conventional way, utilizing, audio-lingual approach, grammar-translation approach, crucial skill, discourse.*

Communicative language teaching has changed artificial classrooms to authentic educational places by connecting language classroom with real materials of social world. The usage of authentic materials in teaching have a great influence in acquiring language skills effectively. For example, the usage of real-life sources, such as movies, BBC news, radio materials or songs would help to develop learners' listening skills in teaching English in current classrooms. Therefore, the usage of authentic sources in listening has become modern trend with the improvement of different technologies, such as the Internet and they are especially applied in listening courses.

In early approaches of teaching language, authentic materials were not considered as valuable source because they were nor arranged in teaching objectives. Actually, several traditional approaches of language learning were explained as useful ways in teaching English. One of the earliest method of teaching language was grammar-translation approach and it includes two aspects, such as grammar and lexical comprehension (Flowerdew and Miller, 2005). Students were taught the grammar with vocabulary, writing could be done automatically during this process and listening was not needed since the grammar translation method was understood as a set of exact rules and studied as a form. Then direct method was existed and learners acquired language orally but listening was not recognized as crucial skill. In grammar-approach listening was an important part of language learning but it was considered as classroom-based activity and it was not related to real world. Only in the middle of twentieth century audio-lingual approach became well-known and the early objective was correct pronunciation. Students were supposed to listen examples of natural pronunciation and corrected grammatical mistakes before imitating the voice of native speaker.

For the last decades, the main aim of a foreign language teaching has shifted from teaching correct grammar and pronunciation into communicative language teaching and learning. Students have been learnt meaning and function instead of language form and they are able to apply classroom theories to authentic situations. Moreover, the usage of language in real-life situations and implementing authentic resources are demands of current methodology. It is described that English is a global language and a lot of users are non-native speakers. Therefore, correct pronunciation and grammar rules are nor wanted today. Current speakers prefer to communicate rather than grammar forms in applying target language.

Authentic materials are considered as one of the most crucial attribute of authenticity

and they are recognized as the base of any classroom process. The usage of authentic language in one lesson plays a fundamental role for attracting learners compared with other features of language learning (Liu, 2016). According to Dewi's experiment, there were listening problems of several students in their listening comprehension and their points do not reach Minimum Passing Grade as well in researcher's macro teaching. Because English is a foreign even now and the second cause is that speaking skills could not run well without listening comprehension. The next reason was to find out successful materials to develop learner's listening comprehension. Usually, teachers apply listening materials in conventional way. They sometimes read the sources in the process of learning listening and students are supposed to rewrite what they heard from their tutor. This make the learners feel bored and they lost their interests about developing listening skills (Dewi, 2018). Therefore, teachers should use effective materials during their practice of listening comprehension to attract learners attention, to interest them in developing their skills.

According to Liu, current English teachers should apply following pedagogical implications:

- language teachers should aware of the term authenticity and understand the strong and weak points of utilizing them in English lessons. Authentic models could help students to develop their speaking as a natural, to draw their interest in real usage of foreign language and to make relations between classroom environment and outside situations. If tutors understand the qualities of utilizing the authentic materials, they could overcome their teaching problems of using effective sources;

- during the usage of authentic materials in listening lessons, teachers would be a chance to sequence tasks from simple to complicated. Utilizing authentic listening resources in classes could lead students to increase their phonological features of natural language. All textbooks of listening are not appropriate for different levels of students. Making needs analysis for various learners and adapting original materials are teachers' jobs. Material adaptation could be an effective method of making broad usage of real source, tutoring learners to understand the whole discourse and improving their language abilities by creating their confidence to study;

- teachers should be always worry about learning from literary sources or getting information from pedagogical world. It is predicted that there could be another type of authenticity in the literary world or there might be an efficient way to interrelate authentic source and assignment in language groups. Additionally, teachers should be busy with reading the new literature in foreign language teaching, trying to overcome current problems of utilizing authentic materials in teaching. (Liu, 2016). This way could gradually improve their teaching abilities, improve teaching practice and research methods.

The usage of authentic materials in listening courses could motivate students, draw their interests and stimulate them into language learning process. Additionally, authentic resources open the doors of real world in learning and acquiring target language. As a result, students can create language environment like native users and they are able to listen recordings for specific purposes. So, interesting authentic materials would develop learners' listening abilities in language lessons and language usage in natural world.

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## COMPARATIVE ANALYSIS OF THE TERMINOLOGICAL SYSTEM OF TOURISM IN ENGLISH AND RUSSIAN LANGUAGES

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*Abstract.* The given article deals with a brief comparative analysis of English and Russian terminological system of tourism industry. There were analyzed and revealed the structural models of terms and the degree of their productivity in the process of term formation. Difficulties arose at the initial stage of studying the terminology of tourism, because today there have existed a small number of glossary terminology dictionaries of tourism industry.

*Keywords:* terminology, tourism, term, structure, component, model.

The terminological system of tourism is poorly understood. This is indicated by the fact that, for example, in the Russian language in the terminological system of tourism there are pre-terms (доплата за одиночное размещение (single supplement), заявка на получение визы (visa application)). They are part of the terminology, which are phrases consisting mainly of common words. This suggests that this terminology is associated with common vocabulary. After all, tourism texts are intended not only for specialists in the field of tourism, but also for ordinary consumers in the area under consideration [1,44].

Due to the fact that in the Russian-language tourist vocabulary there is a small number of primordially Russian terms, there is a borrowing and adaptation of terms from other languages (mainly from English): туристическое агентство - tourist agency; ресепшн - reception; хостел - hostel; гид - guide; ваучер транспортный - transportation voucher.

In the course of the study, it was revealed that among the tourist terms, multi-component terms prevail. The presence of a large number of verbose terms indicates a relatively recent origin of lexical units in the studied thematic group. Multicomponent terms represent a complex semantic and structural formation with various combinations of their components [1, 47]. For instance: номер (комната) с двумя двуспальными кроватями - double room; камера хранения багажа - baggage checkroom; билет без права возврата - nonrefundable ticket [3,74].

Taking into account the fact that the tourism industry and its terminological system are at the stage of development, the corpus of functioning words in this area is increasing. The dictionary of tourist terms is updated in the following ways:

1) borrowing from other languages. For example, borrowing from English into Russian (вагон - бар - wagon-bar);

2) with the help of word-formation affixes and morphemes. This way of forming tourist terms is often found in English. For example, the Russian phrase "оформление билетов" can be translated by the one-word term "ticketing". In this case, it is observed that the noun "ticket" - "билет" by adding the suffix -ing acquires a completely new meaning;

3) by word composition (hovercraft - судно на воздушной подушке, leaseholder - получатель лизинга);

4) the fourth method is the most common. Most travel terms are phrases. Thus, a larger layer in the tourism terminology system is occupied by multicomponent rather than single-word terms [1,75]: разрешение на постоянное место жительства - residence permit [3,58]; таможенные формальности - customs formalities [1,53]; туристский

автобус - tourist coach [3, 47].

When translating multicomponent terms, difficulties may arise due to the semantic and syntactic discrepancy in the structures of the English and Russian languages. In turn, international terms, which abound in the field of international tourism, greatly facilitate the process of translating multi-component terms: Double occupancy [2, 67], occupancy - размещение; double occupancy - двухместное размещение; rate - цена.

The analysis of tourist terms shows that from the point of view of their structure and form, most of the terms in the English language have a substantive model. Of the analyzed English terms, two-component terms with a substantive model prevail (hotelchain - цепь гостиничная, partyticket - билет групповой, обслуживание пассажиров - passengerhandling, норма багажа - luggageallowance, touristcentre - туристический центр).

Etymological research allows you to find out from which word certain terms originate and determine which word-formation model is used. The tasks of etymology include identifying ways of developing and replenishing the vocabulary of the language [1, 78]. Thus, it is necessary to determine with the help of which models lexical units are formed.

It should be noted that the English term group also contains foreign language borrowings. Borrowed mostly from French lexemes (couchette (fr.) - couchette (eng.), tour (fr.) - tour (eng.), excursion (fr.) - excursion (eng.)).

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## MODERN TECHNOLOGIES AND METHODS OF TEACHING FOREIGN LANGUAGES IN HIGHER EDUCATIONAL INSTITUTION

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*Abstract: the material of the article focuses on the modern technologies and methods of teaching foreign languages in tertiary educational institution.*

*Key words: modern technology, method, purposes, computer, process of learning, students, higher educational institution.*

The purpose of this investigation is achieving a high level of proficiency in a foreign language without fundamental language training in higher education. At most universities in the country, students master at least two foreign languages.

We cannot imagine education without modern technologies and there are a lot of reasons to create new technologies. For example, the aim of accelerating and increasing the effectiveness of the teaching in developed countries, the organizational, scientific and methodological foundations of the system of continuous education have been created in each developing country.

We have investigated that proper use of modern methods to ensure the quality and effectiveness of foreign language teaching demonstrates its effectiveness. One of the difficulties of learning foreign languages is learning the correct pronunciation. There are many advantages to using technical equipment. One of them, and, more importantly, is the increase in students' interest in science, that is, in their foreign language. At present the foreign languages taught in many institutions of higher education have various computer-based programs and technologies developed by the language industry and now they are available to teachers and students.

Students have to be prepared on the basis of high-quality modern authentic educational material for the conscious use of a foreign language in later life and work. After all, a good knowledge of foreign languages now will continue to remain one of the leading requirements of employers. In this regard, it is the universities that are responsible for providing high-quality students with a complex of language knowledge and skills, this requires, first of all, the educational institution to systematically create conditions for the professional development of their teaching staff, to provide the institution with an adequate material and technical base. High-quality language training of students is impossible without the use of modern educational technologies

In our study we have adopted that modern technologies in education are professionally-oriented teaching of a foreign language, employment in training, application of information and telecommunication technologies, work with educational computer programs in foreign languages (multimedia system), remote technologies in teaching foreign languages, creating presentations in PowerPoint, using Internet resources, learning a foreign language in a computer environment (forums, blogs, e-mail), the latest test technology. At this

stage of development of methodical science, the main methods of teaching foreign languages are communicative and constructivist methods.

Thus, depending on how the person perceives information best, the most appropriate method of teaching should be selected, so that the process of learning a foreign language for the learner would not be a routine, but an enjoyable business.

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## STATE AND LAW

### THE ISSUES OF IMPROVING THE INSTITUTION OF THE PRE-TRIAL SESSION PROCEEDINGS IN THE ECONOMIC COURTS

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*Annotation: This article discusses the institute of the pre-trial session in economic courts, the different approaches to the understanding of this institution, as well as a number of urgent problems that arise during the pre-trial session, and their solutions.*

*Keywords: pre-trial session proceedings, economic procedure, economic courts of Uzbekistan*

The purpose of this research is a comprehensive study of the institution of the pre-trial session proceedings in the economic procedural law, evaluating its effectiveness, as well as developing proposals for improving legislation and law enforcement practice.

Law reform, implemented in Uzbekistan, affects different aspects of legal activity and changes also occurred in the organization and working conditions of courts. The procedure of case preparation for trial had also much improved.

According to the Resolution of the President of the Republic of Uzbekistan dated 05.02.2019 No PP-4160 "On additional measures to improve the rating of the Republic of Uzbekistan in the annual report "Doing Business" of the World Bank and the International Finance Corporation", allowed to the pre-trial session proceedings in the economic court as a method of dispute resolution.

After that on the 29th of May, 2020 the Law "On introduction of amendments and addenda to the Economic Procedure Code of the Republic of Uzbekistan" was adopted, which allows to hold a pre-trial session proceedings as a method for resolving the conflict. And this law will ensure accelerated implementation of the requirements stipulated in the indicators of the annual "Doing Business" report.

Analysis of judicial practice shows that judges delay trial some cases and some of them are due to the absence of any of the participants in the process or the lack of evidence confirming the notice of all participants in the process about the time and place of the new court hearing. Compliance with the requirements of the law on the proper preparation of civil cases for court proceedings is one of the main conditions for their correct and timely resolution. Failure to conduct or formal preparation of cases for trial, as a rule, leads to the postponement of the trial and in some cases to the adoption of unreasonable decisions.

Why is the pre-trial session important? Because when holding a pre-trial session, the judge:

1) interrogates the plaintiff on the merits of the claims made by him, ascertains from him possible objections from the defendant and, if necessary, invites the plaintiff to submit additional evidence, and also explains the right to refuse the stated claims and its legal consequences;

2) interrogates the defendant on the circumstances of the case, finds out what objections he has against the plaintiff's claims and what evidence these objections can be supported by, and also explains to the defendant his right to recognize the plaintiff's claims or make counterclaims, invites the defendant to submit written explanations in

the case. Failure by the defendant to submit written explanations and evidence, as well as his failure to appear at the hearing, do not interfere with the consideration of the case on the evidence in the case;

3) ascertain from the parties the possibility of concluding a settlement agreement or alternative methods of resolving a dispute and explains their legal consequences;

4) taking into account the complexity of the case, determines the predictable schedule of the trial, including the timeframe for filing petitions and documents with the court that are important for resolving the dispute, exchange lists of witnesses, if any;

5) ascertain from the parties present at the meeting and other interested persons whether there is an agreement between them on the issue of the jurisdiction of the court of this case, the need to perform other actions provided for in article 163 of this Economic Procedure Code.

The parties and other interested persons shall be notified of the time and place of the pre-trial session by court summons, registered letters, telephone messages, telegrams and other means of communication that ensure the recording of the fact of notification.

A protocol is drawn up on the pre-trial session, which indicates: year, month, date and place of the pre-trial session; the name of the court in which the case is being processed; surname and initials of the judge and the secretary of the session (assistant or senior assistant to the judge); information about the parties, other interested persons and explaining to them the procedural rights and obligations; the explanations given by the parties.

In case of failure of the parties to appear, the judge shall perform the actions specified in parts one and two of article 163 of the Economic Procedure Code. In this case, the protocols of the pre-trial session are not drawn up.

If there are grounds provided for by this Code, the proceedings on the case in the pre-trial session may be suspended or terminated, the statement of claim left without consideration.

When preparing a case for trial, a judge, with the exception of cases considered by way of simplified proceedings, within ten days from the date of acceptance of the statement of claim for proceedings and initiation of the case, may hold a pre-trial session in the manner prescribed by this Code.

In this Code there is no answer for the event that the judge and the persons participating in the case come to the concluded that the case is not ready for trial proceedings.

Besides, the author, when studying Anglo-American legislation, revealed procedural procedures similar to the pre-trial session constructions - final pre-trial conference in the USA and pre-trial consultation with lawyers (pre-trial review) in England. Judges also use pre-trial conferences to encourage settling cases. At the conference, the judge and the lawyers can review the evidence and clarify the issues in dispute.

Researchers at the pre-trial session viewed this phenomenon in different ways. So, M.O.Borozdina considered the preliminary hearing as "one of the optional actions of the judge in preparing the case for trial" [1]. In the Republic of Uzbekistan a pre-trial session is not mandatory. In this regard, it would be reasonable to understand by a pre-trial session - the actions of the judge, which are aimed at resolving important issues of the process, from the point of view of the parties, as well as the actions of the parties aimed at the correct and timely consideration of the case. For example, In the first half of 2020 only 37841 cases (73.2%) of the total cases (51724) in the first court session [2]. That's why the role of the pre-trial session is very huge for preparing cases for the trial.

In the first half of 2020, judges of economic courts of inter-district (district, city) economic courts considered 50578 economic cases. The specified number of cases was considered by 128 judges of inter-district (district, city) economic courts (total 71). At

the same time, the staffing of courts is 177 judges and in the period under review were available 49 judicial vacancies. The average monthly workload per judge in the republic was 65,9 cases [3].

Problems:

There is no norm in the Economic Procedure Code which regulates the rights of participants to take part in the pre-trial session with the use of videoconferencing systems.

The organization of a pre-trial session remained the judge's prerogative, and the law did not specify which categories of cases should be compulsory for the pre-trial session.

If the law establishes a pre-trial (claim) settlement procedure for a certain category of disputes or it is provided for by an agreement, the case can be initiated in court only after the parties take measures to voluntarily settle their relationship. That's why if the parties are fully present at the pre-trial session, it is not possible to equate this process with the pre-trial (claim) settlement of the dispute.

Recommendations.

Thus, in order to achieve higher stability indicators of the work of economic courts and their judicial acts, it is necessary:

- 1) careful preparation of the case for trial;
- 2) full use of the institution of a pre-trial session;
- 3) requesting evidence of the status of persons participating in the case, finding out their whereabouts in each case;
- 4) taking appropriate and comprehensive measures to notify the persons participating in the case about the place and time of the court session.
- 5) expanding the range of issues considered in the preliminary court session, by referring to them the issue of joining and separating several claims.

Conclusion.

The pre-trial session is characterized by the following aspects:

- 1) in the pre-trial session there is an additional opportunity for the parties to clarify the most significant issues process on the case;
- 2) the pre-trial session is an additional (along with procedural preparatory actions) means of performing tasks preparation of the case for trial;
- 3) the pre-trial session is a means optimization of justice, as it allows to achieve the goal of economic legal proceedings, spending less effort, money and time;
- 4) at the end of the pre-trial session, the judge, having recognized the case prepared, makes a ruling on his appointment to judicial proceedings;
- 5) it should be noted that the pre-trial session is directed, first of all, to ensure the interest of the parties associated with the exchange evidentiary information. Therefore, a pre-trial session in the absence of at least one of the parties will be problematic due to the difficulty of achieving the goals of its implementation.
- 6) at the same time, the assessment of evidence at the stage of preparation is conditional, preliminary. Therefore, when preparing a case, the evidence is preliminarily assessed not on the merits, but from the point of view of the possibility of assigning the case to the first preliminary hearing.

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## TECHNOLOGICAL SCIENCES

### JUSTIFICATION OF THE EFFICIENCY OF THE DEVELOPED SYSTEM OF REMOTE CONTROL OF THE SEGMENTAL GATE OF THE RESERVOIR

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*Abstract.* The article discusses the method is mainly used to control the segmented gate of the dam reservoir using fuzzy logic implemented in an embedded system using ultrasonic sensors. The shutter is precisely controlled, with a stepper motor, the problem of flooding due to excess water in the reservoir is solved.

*Key words:* remote control, reservoir, segment gate, automatic control, fuzzy analysis.

The result of fuzzy analysis can be expressed using the method of representing human knowledge about the subject. As a rule, a (subsequent) conclusion can be obtained if the fact (hypothesis) is known. As mentioned earlier, rough arguments for arriving at a theoretical justification for imprecise proportions is the ultimate goal of fuzzy logic. For reasoning about fuzzy logic based on the rules of the system in the form "IF-THEN", a convenient antecedent is the use of a sequential form. All important inferences can be drawn from a set of canonical rules based on the system. A typical representation of the canonical form of a rule-based fuzzy system is shown in Table 1. If there is more than one antecedent, a conjunctive or disjunctive operator is required to join them. Accordingly, the conjunctive operator and the disjunctive operator follow the standard intersection and union operations. Controlling and optimizing the outflow of water from a water resource system requires minimizing the available resources based on given input variables such as inflow, storage and a specific time period of the year. The crossing operator is used to minimize the flow and storage of water over a period of time.

Table 1 presents the canonical form of the fuzzy rule base as applied to the remote control system of the segmental gate of the reservoir, where

$A^1, A^2, A^r, B^1, B^2, \dots, B^r, C^1, C^2, \dots, C^r$  и  $D^1, D^2, \dots, D^r$ , represent the set of precursors of inflow (P), memory (S), time period (T) and outflow (O), respectively [1].

Multiple antecedents can be combined using the conjunctive operator. For example, IF inflow  $A^1$  And the store is  $B^1$  And a period of time  $C^1$ , THEN leak  $D^1$  fuzzy rule in a rule-based system. The aggregation of the antecedents of the conjunctive operator is given in formula (1). Assuming that as a new fuzzy subset

$$R^S = A^1 \cap B^1 \cap C^1, \quad (1)$$

which can also be expressed as a function membership:

$$\mu_{R^S}(u, v, w) = \min[(\mu_{A^1}(u), \mu_{B^1}(v), \mu_{C^1}(w))]. \quad (2)$$

In real-life situations, a rule-based system consists of more than one rule, so each rule in a rule-based system allows a common conclusion from an individual to be reached in different ways. Thus, the aggregation process is performed to achieve a common subsequent use of the disjunctive operator, which acts in the same way as the union operator as defined for a fuzzy set. The disjunctive operation used to aggregate sequences is given in formula (3). Given that  $Y^S$  as a cumulative fuzzy output:

$$Y^S = D^1 \cup D^2 \cup D^3 \cup \dots \dots D^r, \quad (3)$$

which can also be expressed in the form of a function membership as indicated in the formula:

$$\mu_{Y^S}(z) = \max[(\mu_{D^1}(z), \mu_{D^2}(z), \mu_{D^3}(z), \dots \dots \dots \mu_{D^r}(z))]. \quad (4)$$

Mathematical procedures can be more efficient if the decision-making process can be formulated with fewer rules. As the number of rules in the decision-making process increases, the computation quickly becomes slow and cumbersome. The graphical form of the output was quite useful for improving the efficiency of the calculations.

Three common methods of deductive inference of a fuzzy system based on rules are proposed:

Rule 1 : IF the inflow is high (IH) and high storage capacity (SC) and time period 1 THEN churn is low - medium (H - CO)  
 Rule 2 : IF the inflow is medium (IM) and storage average (SA) and time period 2 THEN Outflow is average (OA) where is high (WH), high (HX), 1, Middle (MO), Low (LMX) and 2 represent fuzzy rule base sets 1 and 2 respectively from the system.  
 Canonical form for a fuzzy system based on rules (table 1.)

Table 1

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The rule 1: IF the inflow is  $A^1$ , and the storage volume is  $B^1$ , and the time period is  $C^1$ , THEN the outflow is  $D^1$ .

The rule 2: IF the inflow is  $A^2$ , and the storage volume is  $B^2$ , and the time period is  $C^2$ , THEN the outflow is  $D^2$ .

...

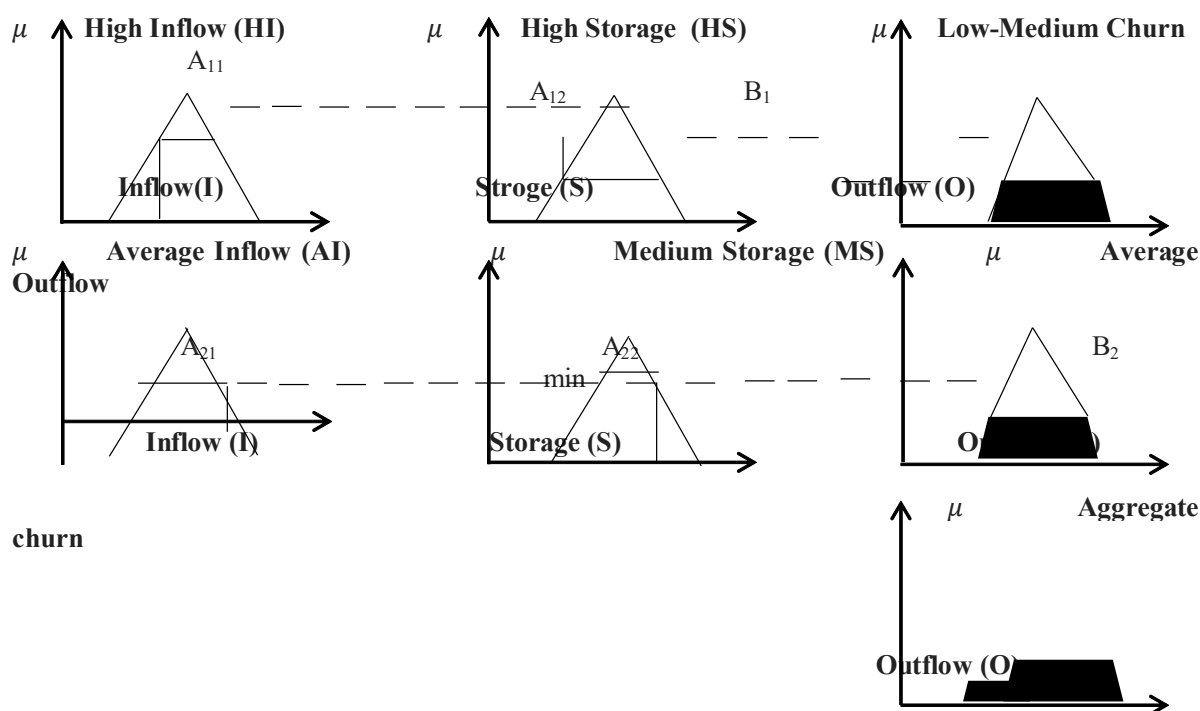
...

The rule r: IF the inflow is  $A^r$ , and the storage volume is  $B^r$ , and the time period is  $C^r$ , THEN the outflow is  $D^r$ .

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Our method and models were used to graph the results. Figure 1 shows a graphical representation of the gate output (max - min), where the characters A11 and A12 refer to the preceding part of the first fuzzy rule and the character B1, which indicates the successive part of the fuzzy first rule. Likewise, A21 and A22 refer to the preceding fuzzy second rules and B2 indicates a consequence of the fuzzy secondary rules. All the previous ones were connected according to the connecting rule "AND", so the minimum membership value from the previous one truncates the membership function of the next one.

The disjunctive (max) aggregation results were obtained in general from the aggregated membership function of rules 1 and 2. The defuzzification process must be performed in order to obtain the final clear output of the aggregated membership function using the weighted average method [2]. The method is that the output is represented as a function of the inputs with the following form:



**Figure: 1. Graphs (max - min) of the method of outputting the results of segment gate control**

The proposed method is mainly used to control the segmental gate of the dam reservoir using fuzzy logic implemented in an embedded system using ultrasonic sensors. The shutter is precisely controlled, with a stepper motor, the problem of flooding due to excess water in the reservoir is solved.

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## DYNAMICS OF MACHINE AGGREGATES WITH MECHANISMS OF WORKING BODIES FOR CLEANING COTTON FROM SMALL DIRTY

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*Abstract. The article presents the experimental results of a new composite pile drum that cleans cotton from fine contaminants. The results of a full-factor experiment of a pile drum with a flexible element of the recommended composition are given. The boundaries of the incoming factors and their levels of change are given.*

*Keywords: pile drum, rubber stamp, cotton, elastic element, grid, number of revolutions, cleaning efficiency.*

At present, ginneries do not have the capacity to clean cotton raw materials from small contaminants with high efficiency. The main reason for this is that the aggregate structures are not sufficiently improved.

Based on this, a pile drum design with a flexible element was developed, which can give high efficiency of cleaning raw cotton from fine waste (Fig. 1). A pile drum design with a flexible element was prepared and tested at ginneries.

In the design, 1 bush 2 bushings are mounted on the flywheels 3, on which a rubber bush 4 is attached. The outer bushing 5 is mounted on a rubber bushing 4 with 6 pegs and 7 bars attached to the surface. There is a mesh surface under the pile drum.

During the operation, 4 rubber bushings are deformed due to the resistance of the cleaned cotton to 6 piles and 7 planks.

The value of deformation and the frequency of vibration depend on the stiffness of the rubber and the mass of the outer bushing 5. Due to the vibration of the pile 6 and the bar 7, the separation of fine waste from cotton is intensified.

The cotton cleaning unit consists of a housing 1 and a horizontally mounted drum 2. It consists of a drum collar 5, a cylinder 4 and a rail 6, which is mounted on the shaft by means of a stupitsa 8 and a circular rubber bushing 9.



**Figure 1. An experimental version of a composite pile drum.**

The second and fourth shafts of drum 2 are mounted  $25 \div 30$  mm lower than the first and third shafts, respectively. The diameter of each subsequent incoming drum 2 was chosen to be  $18 \div 30$  mm larger than the diameter of the previous incoming drums.

$$d_1 < d_2 < d_3 < d_4$$
$$d_2 - d_1 = d_3 - d_2 = d_4 - d_3 = 18 \div 30 \text{ mm}$$

where  $d_1, d_2, d_3, d_4$  are the diameters of the first, second, third and fourth drums.

The cleaning section of the cotton cleaning unit works in the following order. The contaminated cotton raw material transferred to the cotton ginning unit falls into the drums 2, the collar 5, the rail 6 catches the pilot cotton and squeezes it through the mesh surface 3.

The finely contaminated mixture is poured out of the horizontal mesh hole and then removed from the cleaning area by pneumatic waste. The angular velocities of all kolko-planktan drums 2 are the same and the constructions are similar.



Figure 2. Cleaning section of the new improved cotton ginning unit.

Given that the thickness of the rubber bushing 9 is  $1 \div 2 \div 3 \div 4$ , the next drum with the corresponding number 2 will have a smaller amplitude and a larger frequency of oscillation than the previous incoming drum.

In turn, the volatile cotton raw material is first exposed to a large amplitude and low frequency (small hardness) (the first drum with a collar 5 and a rail 6), in which the cotton is separated from the dirt under a small force, and then with the second, third and fourth collars and rail 2. When exposed to cotton, vibrations occur with a small amplitude and a large frequency, and the impurities in the cotton and its deep bottom are released under great force.

In addition, the installation of a pneumatic suction 10 to separate contaminants from the cotton raw material prevents dust from the air in the cotton ginning plant.

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## BENCHMARKING IN THE AUTOMOTIVE INDUSTRY

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*Annotation. The article substantiates the necessity of using benchmarking to increase the competitiveness of national enterprises of the automotive industry. The experience of conducting benchmarking projects by the largest automotive corporations in the world is considered. The necessity of state support for the spread of benchmarking in Uzbekistan.*

*Keywords: benchmarking, automotive industry, competitiveness*

The automotive industry is a strategically important area for the economy of any country, including Uzbekistan.

Benchmarking is an effective tool for managing innovative development, which has proven itself in many foreign large companies. The essence of benchmarking is to study and compare the performance of your enterprise with that of competitors and top organizations, and then apply their successful experience.

Benchmarking allows companies to improve their competitive position in the industry by learning from the experience of other market participants. However, we are not talking about primitive copying; this understanding of benchmarking significantly reduces its strategic potential.

In practice, it is very difficult to get absolutely complete information about the working methods and technologies used by competitors. In addition, even if an enterprise has such information, it is not possible to fully reproduce someone else's experience due to the lack of certain resources (material, intellectual, human, organizational), as well as the existence of distinctive features of markets and methods of business organization.

A feature of benchmarking as a tool that contributes to the continuous improvement of an organization, expressed in its high efficiency, is the creative component. Research findings should not simply be copied and implemented in the enterprise. The benchmarking team must outperform them, i.e. synergize the results of the project. It is synergy of results and creative thinking that allows enterprises to achieve the best results through benchmarking. Thus, the word "borrowing" does not fully reveal the essence of benchmarking as an effective tool for increasing the competitiveness of enterprises in the 21st century .

A common approach used in competitive benchmarking is to buy competitors' products in order to conduct a detailed engineering analysis of the products, services and processes. Without information on the activities of competitors, it is impossible to create competitive world-class products, especially in the highly competitive automotive market. In practice, most of the largest foreign car manufacturers disassemble cars produced by competitors and carefully analyze the design, compare assembly methods, quality, and design of components part by part. Packaging, current manuals, instructions, terms of service, warranties, delivery, etc. are carefully studied, which provides valuable information about the advantages and disadvantages of competitors' products and the effectiveness of their work. As practice shows, benchmarking is used by large companies interacting with foreign partners who are guided by world standards and the world market. The largest corporations, including the automotive industry, in search of competitive advantages, direct their efforts to find and develop new management methods. These

studies are global in nature, the most successful solutions become separate areas in management, a theoretical and methodological base is provided for them .

After conducting a benchmarking study, answers can be obtained to the following questions: to what extent are the indicators of consumption of raw materials per unit of output of the studied industrial enterprise worse or better than competitors, other enterprises in the industry, in the world. How much electricity is spent on the production of a unit of production of the enterprise - leaders and at what level is the enterprise in comparison with them.

GM Uzbekistan is a joint venture between the Uzbek OJSC Uzavtosanoat and the American company General Motors on the basis of CJSC UzDaewooAuto. Located in the city of Asaka, Uzbekistan. General Motors owns 25% plus 1 share of the company, with the possibility of a subsequent increase in the share to 40%. The remaining 75% belongs to Uzavtosanoat. More than 9000 people work in "GM Uzbekistan", more than 250 thousand passenger cars are produced a year and supplied both to the domestic market and for export, including Russia and other CIS countries. .

According to the published data of Uzavtosanoat, the automotive industry of Uzbekistan today is dozens of modern enterprises equipped with unique equipment that allows it to manufacture products according to the highest world standards, as well as flexibly and quickly re-adjust production to new types. Domestic cars drive on the roads of many countries of the world, demonstrating the power, quality and reliability of Uzbek cars .

Of course, the Uzbek car industry has something to look back on and something to be proud of over the past year. But it is equally important to outline goals and ways to achieve them for the future.

One of the most important questions everyone is interested in is the production of cars. Next year will be the year of more records and achievements, and the main one is the increase in the production volume of UzAuto Motors and bringing it to 300 thousand cars per year. An equally important goal for 2020 is the launch of a project to establish the production of new car models on a single global platform. It is on these platforms that the production of SUVs and sedans will be launched.

Summing up, we can say that benchmarking is a necessary tool for increasing the competitiveness of enterprises in the 21st century. Studies have shown that in order for national automotive enterprises to reach a sustainable competitive level, a strategic program for the dissemination of benchmarking methodology in Uzbekistan is needed, as well as the creation of a national auto industry alliance with government support.

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## METHOD OF OBTAINING STITCHES WITH DIFFERENT LENGTHS IN SEWING MACHINES

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*Abstract.* The article provides a new way to get variable-length stitches for making garments with the required stitch strength in certain areas.

*Key words.* Material, shuttle, length, chain stitches, sewing machine.

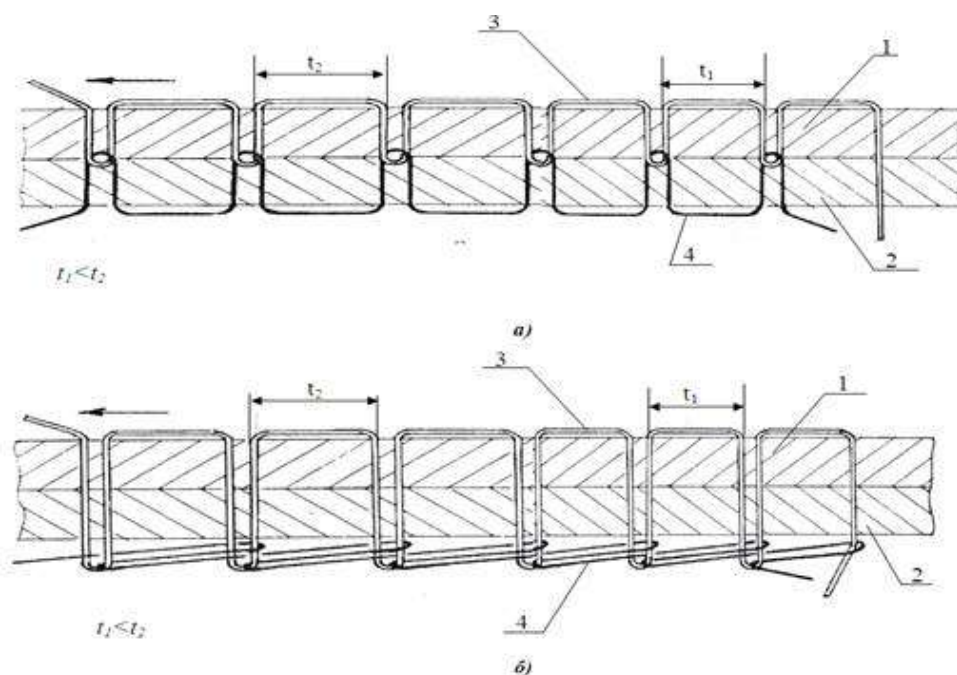
In existing methods of producing shuttle and chain stitches, the length (step) of the stitches are constant. In this case, the length of stitches is provided in sewing machines mechanisms for moving materials, in particular stepper motors with software control [1,2]. The disadvantage of the existing method of obtaining stitches with stitches of the same length (step) is the constancy of the breaking load of stitches along its entire length. In this case, the possibility of increasing stitch strength in the required intervals (zones) stitches is not provided. It is known that reducing the length of stitches in the stitch lead to increased stitch strength, ie increase the breaking load of stitches. [3]

Therefore, to increase the strength of cross-linking materials is reasonable to reduce the step of stitching (stitch length). Consumption of sewing threads for stitches in different types of stitches presented formulas their calculation in [4].

From the technology of stitching materials in the manufacture of clothing known [1], that requires high strength stitches in certain areas, and in certain areas it is not required. Therefore, it is important to obtain stitches with variable strength breaking characteristics.

To get the stitches of shuttle and chain stitches with variable strength in the required zones is recommended an effective way to move materials during their machining.

The method is explained in the drawing, where, in Fig. 1 a - diagram of double-stranded shuttle stitches type 301 with variable stitch pitch, in Fig. 2 b - scheme of double-stranded chain stitches type 401 with variable length (step) of stitches.



**Fig.1. Method of obtaining stitches from shuttle and chain stitches**

Machining of materials 1 and 2 by the upper 3 and lower 4 strands by the proposed method is carried out as follows. In the process of sewing materials 1 and 2 in sewing machines are formed stitches length  $t_1$ . In this case, by changing the movement of materials 1 and 2 process of sewing materials 1 and 2 will be carried out with a step (length) stitches  $t_2$ , while  $t_1 < t_2$ . Then in the area of stitches with lengths of  $t_2$  stitches will be stronger than in the area of stitches with lengths of  $t_1$ . Changing the step movement of materials 1 and 2 in practical terms will be carried out by a stepper motor to move materials in the sewing machines (not shown in the figure due to their general familiarity).

Definition of tensile stitch characteristics. In the experiments, the threads "100% Spun Polyester", No. 40/2 and No. 20S / 2 were used for the upper thread in white, and for the lower thread in red, so that the stitches in the string were different.

The strength of the stitching in the longitudinal direction depends on the strength of the sewing thread [5]. First, we determined the strength and elongation of the sewing thread "100% Spun Polyester", No. 40/2 and No. 20S / 2 on the STATIMAT-C tensile testing machine. This installation is designed to determine the breaking characteristics (breaking load, breaking elongation) of various threads.

The proposed method for obtaining stitches with variable length shuttle and chain stitches allow you to obtain sewing products with the required strength and performance characteristics.

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## DEVELOPED EFFECTIVE SEWING MACHINE NEEDLE DRIVER MECHANISM

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*Abstract.* The article describes the mechanism of the needle bar of the sewing machine containing a crank mechanism connected to the needle bar, has an elastic element in the form of a spring mounted on the upper guide of the needle bar and in constant contact with the upper end of the needle bar.

*Key words:* thread breakage, loosening of stitches, high stitch strength, needle.

At present the tendency of sewing production development is based on the following: production automation, creation of technological means for high-quality sewing products, wide range of products, power capacity, high productivity of sewing machines, etc.

Thus for reliable work of sewing machines it is important to eliminate the breakage of threads, dissolution of stitches, high stitching strength. To achieve the above it is necessary to improve the design of working bodies and mechanisms of sewing machines, including the needle-driver mechanism .

The needle mechanism is known to contain a counterbalanced crank, which is connected with the main shaft of the machine and with the needle driver through a crank-rod mechanism.

Also the mechanism of the needle-rod driver is known, containing the connecting rod, connected with the upper head with the pin of the crank pin, installed on the main shaft, with the lower head by means of the horizontal axis, connected with the needle-rod driver.

The disadvantage of the known mechanisms is the increased inertial loads when the speed modes of machines are increased. And this, in turn, reduces reliability and leads to a decrease in durability and service life of kinematic pairs connecting the links of the mechanism, which sometimes makes it economically inexpedient to increase the speed modes. The sewing machine needle drive mechanism, containing the crank-rod mechanism connected with the needle drive, has an elastic spring element mounted on the upper guide of the needle drive and is in constant contact with the upper end of the needle drive .

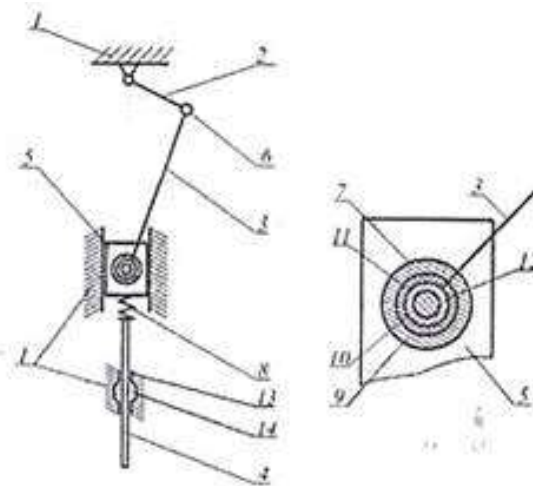
The main disadvantage of this design is frequent needle breakage and bending due to the high inertial force of the needle while calculating the cross-linked materials due to the accumulated energy by the needle spring of the driver. In addition, this design is not possible to increase the speed due to the high friction force in the lower needle guides of the needle carrier, the lack of damping of reaction forces in the joint between the connecting rod and crank, as well as insufficient energy accumulation by the spring in idling (compression) movement of the needle carrier.

In our recommended design the problem is solved by reducing the friction area of the needle carrier in its lower guides, by the presence of the amortization of reaction forces in the joint between the connecting rod and the needle carrier (piston), as well as by improving the elements of amortization by the needle spring of the needle carrier in the working mode of materials ignition.

The essence of the design is that the mechanism of the sewing machine needle carrier contains a crank-rod mechanism associated with the needle carrier, has an elastic element in the form of a spring installed between the bottom of the needle carrier and

the needle, with the contact area of the needle carrier in the bottom guide is reduced by performing the guide step, the hole of the guide with a larger diameter is made in the middle of a relatively smaller diameter of the hole on the edges of the guide. The joint between the connecting rods and the needle carrier in the lower part (piston) is made by a composite and has an elastic bushing. The proposed innovation allows to increase reliability of mechanism operation and eliminates needle breakage and bending.

The offered mechanism of sewing machine needle-driver (fig. 1) consists of a crank 2, installed in the body 1 and fixed on the left end of the main shaft (not shown on fig. 1). Crank 2 at the other end is connected to the connecting rod 3 with a hinge 6, the needle is made by a composite and upper 5 and lower part 4, between which a spring 8. In turn, the connecting rod 3 is connected with the upper part of the needle carrier (piston) 5, the lower part 4 of which moves in the guide 13, made by a step. In this case, in the middle of the guide 13 hole 14 is made with a larger diameter than the diameter of the holes on the edges of the guide 13 and therefore this part does not touch the surface of the bottom of the needle carrier 4. Hinge 7 is made composite with an elastic bushing 10. Joint 7 consists of an outer bushing 9 rigidly connected to the rod 3. The outer bushing 9 is mounted on the inner bushing 12 through a rubber bushing 10. The inner bushing 10 is a kinematic pair of the fifth class with an 11 axis rigidly mounted at the top of the 5 (piston) needle roller.



**Figure 1: Mechanism of sewing machine needle driver**

The lower part 4 of the needle drive, while idling upwards, presses the spring 8 while the spring accumulates a certain amount of energy by converting it, then returns the accumulated energy to the lower part 4 of the needle drive mechanism.

In this case, the spring 8 not only accelerates the downward movement of the lower part 4 of the needle carrier, but also when the needle calculates cross-linked materials (not shown in the fig.) allows some cushioning of the needle carrier's movement, which allows to avoid needle bending and breakage.

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