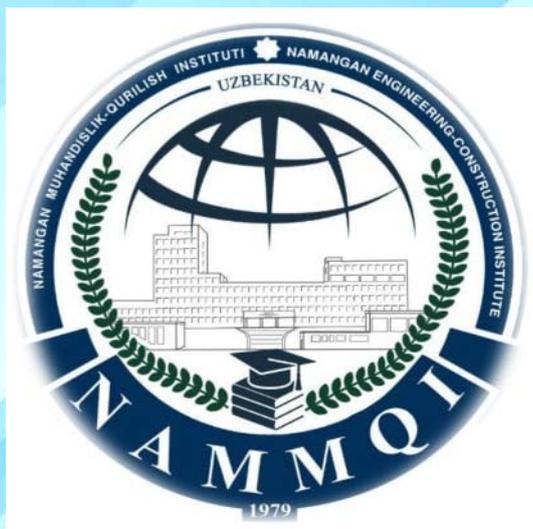


REPUBLIC OF UZBEKISTAN
MINISTRY OF HIGHER AND SECONDARY SPECIAL
EDUCATION
NAMANGAN INSTITUTE OF ENGINEERING AND
CONSTRUCTION



MANAGEMENT OF TECHNICAL SYSTEMS
from science

EDUCATIONAL METHODOLOGY
COMPLEX

Namangan

REPUBLIC OF UZBEKISTAN

MINISTRY OF HIGHER AND SECONDARY SPECIAL EDUCATION

NAMANGAN INSTITUTE OF ENGINEERING AND CONSTRUCTION

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**MANAGEMENT OF TECHNICAL SYSTEMS
BY SCIENCE**

CURRICULUM COMPLEX

Educational and methodological complex of technical systems management
60712500-Vehicle engineering (automotive transport)

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STUDY MATERIALS

1-Lecture: The subject, function and resources of the science of technical systems management

Study plan:

- 1.1. The purpose of teaching science.
- 1.2. The task and sources of science.

1.1. The purpose of teaching science.

The aim of the subject is to provide scientific and practical knowledge of management of technical systems to the trained specialist, to teach advanced modern methods of management of technical systems, to increase his interest in science and his profession.

We know very well that the past 20th century was written in golden letters on the pages of history as the century of science and technology.

One of the most important miracles of the last hundred years was the appearance and development of the car, which became an integral part of our daily life, a preferred and necessary tool in all respects. Is it possible to imagine human life today without a car?!

It is a vehicle that makes our journey closer and takes us to our desired destination in an instant.

Its convenience is that it will take you to the desired street, village, and mountainous destinations, and it will be a fast moving means of transport and will deliver you to your destination, save your time, and make your life meaningful.

Motor transport in its essence brings prosperity to the country and accelerates the development of our country.

After the Republic of Uzbekistan was declared independent on August 31, 1991, it was necessary to establish the automobile manufacturing industry in the republic, to use the existing motor vehicles effectively and efficiently, to purchase cars with high-level reliable properties from foreign countries, and to participate in this industry. the training of national specialists in

The condition of the vehicles is as follows:

- passenger cars in the USA - 130 million, in Germany - 35 million, in Japan - 24.4 million, in France - 20 million. 18 million in England, 11 million in Canada. and in Uzbekistan - 1 mln. more than

- trucks in the USA - 37 mln. 8.5 thousand in Japan, 1.3 thousand in Germany, 3.5 thousand in Canada, 2.9 thousand in France, and 0.3 million in Uzbekistan.

- 600,000 buses in the USA, 230,000 in Japan, 100,000 in Germany, 55,000 in Canada, 50,000 in France, and 200,000 in Uzbekistan. 73 thousand in England.

The Republic of Uzbekistan also contributes to the world market with its manufactured cars (UzDEUavto, Samkochavto) and produces several hundreds of thousands of passenger cars and buses per year.

If we take into account more than 1 billion tons of cargo and more than 3 billion passengers transported annually among these figures, it is not difficult to understand that not only the republic's motorists, but all our executives are facing huge economic

and management problems waiting for their solution. (Andijontrans) It is necessary to use ATK as an example).

Because the management mechanisms (goals, laws, theories, tasks, principles, models, methods) that are solved in the second, third and subsequent stages of these indicators, management systems (in statics: the organizational structure of management - management bodies, personnel management, technology; in action improvement of management processes and management system), the nature of management objects, information exchange, etc., based on which, creating production relations in the modern market economy, giving instructions and recommendations that ensure the growth of the economy of organizations and enterprises in business activities Establishing a pricing policy is not an easy task.

In our science, determining the level of technical, technological, organizational, economic indicators that are related to the work of the joint team of motor transport and technical service enterprises and are not related to the level of the conditions inside and outside the enterprise, the enterprise phenomena such as interrelationships between entities, adoption of a management solution by the head and managers of the enterprise, relations, processes, and systems, if they serve as objects, are studied from the point of view of the method.

The method of the textbook of management of motor transport enterprises is based on the requirements arising from the development of the market attitude, social events, and the science of management. According to them, the styles of management of motor transport enterprises are created.

The subject we are studying consists of two sections, the first of which focuses on solving the general problem of organizing the management process.

In the department, the theoretical foundations of the organization of the management process in the field of technical service are seen in the enterprises of motor transport and passenger car maintenance: at the high level of management in different ownership conditions, in the transport network.

Separate functions of the management process are considered. In some cases, the working order is analyzed, in another case, the subjects are analyzed, and in the third case, the content of the processes is analyzed. This is done in order to consciously take into account the large number of descriptions of the direction of the management process.

The second section is dedicated to the management of the economy of automobile transport and technical service enterprises for public cars. In this, it is explained that the development of any enterprise under the influence of many economic sciences, based on their promising economic laws, theories, principles and models, should be implemented in practice. It is said that efficient use of limited resources, rational organization of processes and management and regular improvement will remain one of the sources. At the same time, in our studied textbook, economic management, development of modern production relations, efficient use of resources and capital investments in the enterprise, design of technological processes in the economy of the enterprise and their economic evaluation, the role of managers in the management of the economy of the enterprise, the role of social groups activity, economy management infrastructure is shown.

Attention is paid to the consideration of the elements of enterprise activity, the quick and strategic management of the production or service process of economic development.

Our subject consists of comprehensive coverage of the problems of mutual relations and general management of enterprise management. Each enterprise is unique, has its own goals and importance, solves its own issues and problems.

1.2. Functions and sources of science.

Ways to organize service for cars in a firm way, based on an alternative approach to engineering issues related to the solution of economic problems in their organization, training and delivery using experience, calculation and computer technology.

To familiarize with state laws, technical-technological and design normative documents related to working conditions in the network, as well as business methods of companies, to master methods of systematic analysis, program objectives and preliminary evaluation, to identify contradictions and shortcomings in production. to learn to work in cooperation with people.

In all spheres of our society, in organizations, enterprises, people work, study, perform certain tasks, manage their activities.

In the Republic of Uzbekistan, there are more than half a million state-owned enterprises operating in more than 2,000 enterprises of various capacities. (Andijontrans, Agency, ATK in the region should be mentioned as an example). The population owns more than one million cars. There are a number of enterprises that provide technical service to them. It is not for nothing that the vehicle is likened to the "blood vessel" of our life and economy. Without roads, drivers, and enterprises that provide them, it cannot provide transport services to the population and the national economy effectively and appropriately.

This system is in constant development and improvement. Therefore, effective influence on the employees or personnel of transport enterprises and achieving the goals set for them is required from the head (owner) of the enterprise, from the managers of departments and divisions, from the executives of each link, the maturity of the environment perceives the temperature of the environment of each period and season. accountability is required now. Each region, community, society, nature, and even each individual's own rules, principles, laws, theories and knowledge are constantly learning and changing. Therefore, in order to achieve the goal of the enterprise, methods of effective use of personnel skills, work procedures can serve as the subject of science.

As any subject differs from other subjects by the characteristics of its subject, we consider the subject of management in motor transport enterprises into two:

1. The subject of personnel (employee) morale.
2. Subject of enterprise economy.

When the subject of the morale of employees working in the enterprise is called, first of all, certain evidences of mental life are meant, and each evidence of mental life has descriptive characteristics, both quantitative and qualitative. If a person's perception, memory, thinking, will, and mood make up his inner world, his spiritual life, even if the things around him change, the image of the perceived object in the human mind remains relatively unchanged. Therefore, together with spiritual evidence, spiritual laws have emerged as a subject to be studied in psychology.

When it comes to the subject of the economy of motor transport and TSC enterprises, it is necessary to clearly distinguish that any enterprise is a group of consciously united people working towards a common goal. If the company achieves its

goal, then the employees of the company have achieved success. The enterprise fulfills its purpose through the production relationship.

Transport and transport enterprises are based on the property of both citizens and the state. The joint venture is established on the basis of combining the property of specialists using its legal entity rights and labor resources. According to the objectives, the motor transport enterprise is divided into the type of enterprises providing car service and repairing the car:

1. Depending on the type of work performed - freight, passenger, mixed, special, urban, suburban, suburban, local, intercity, international automobile transport enterprise.
2. Depending on the purpose of the recommendation and production and economic activity - general use

ATK and the enterprise of the union of departments, ministries, agricultural industry.

The process of motorization is not limited to the increase of the number of cars, but also the need to increase the capacity of the streets to pass cars, the construction of roads and their convenience, the organization of parking and storage areas, trade enterprises for the sale of car spare parts. , ensuring traffic safety and environmental protection, including the construction of public car service centers, warehouses, car gas stations and other enterprises.

The activity of all enterprises is based on the law of regular circulation of means in the process of providing services and purchasing transport products. But each type of car transport company can have different financial composition.

For example: the amount of paid distance, the number of passenger boardings, the average car - the taxi is at the client's disposal. The organization of production activities in enterprises is important in the selection and formation of the production and management structure of the object, in determining the ratio between the structural elements of the system and their mutual description, in optimizing the production (service) processes of the enterprise, and in creating modern technological processes. finds its expression.

In short, the economic activity of the enterprise is evaluated depending on the rational use of the mental and physical forces of the enterprise, the main funds of the enterprise. The level of economic and production activities is evaluated by indicators of efficiency of use. These indicators are the main subject, and when implementing them in the company's activities, it is necessary to be able to distinguish between the product of scientific thinking and the understanding of team members' life problems.

For example: Market means a place where many people gather to trade. If considered as a product of scientific thinking, the market means exchange with the help of money, i.e. trade relations between people, which is also studied a lot.

Review questions.

1. What is the purpose of studying science?
2. Tell the nature of the vehicle?
3. What do you know about the development of motor transport in the Republic of Uzbekistan?
4. The role of the republic in the world automotive industry?

5. How is the technical field of car factories and technical service centers managed?
6. What do you know about managing the economic sphere of automobile enterprises and technical service enterprises?
7. Tell the management infrastructure?
8. Which country's laws related to online business do you know?
9. Requirements from employees and managers in the transport system?
10. Describe the subjects of management science in automobile enterprises?
11. Do you know the types of motor transport companies?

2-Lecture: Technical systems and their management methods

Study plan:

- 2.1. Main properties and classification of large systems
- 2.2. An understanding of the relationship between the system and the structure of the line
- 2.3. Government decisions and laws related to the development of technical systems
- 2.4. Concept of management

2.1. Main properties and classification of large systems

There is a bipolar style of management; reactive and purposeful. In the reactive style, it is carried out during the planning process or before the start of the action, decisions are made in the way they are encountered and without a deep analysis of the consequences, and it consists of a reaction to the current times.

Targeted or program-targeted essence of the control method consists in determining the final goal of the system and combining all aspects of the activity of the small system in the form of a program to achieve the goal. The program is a complex of activities completed in time and space that ensures the achievement of the set goal.

The program connects the goal with the resources, that is, the necessary resources at each stage that are needed to transform the result or the final (target) product.

Determines the amount of resources. Thus, the goal of the program is the tasks materials, tools, personnel, etc., united according to common signs a set of activities is presented.

The efficiency of the program means the minimization of the total resources spent in fixed periods or the reduction of the periods of meeting the needs of the society to a certain level with the specified resources.

It is appropriate to retain the term "programme" for large-scale and long-term federal, sectoral or regional actions. At the enterprise level, the terms "event" and "action" (operation) are more common and should be developed and implemented using a program-target approach.

The program-target approach logically envisages planning and management as follows: adjusted or new goals-implementation of the plan-plan (decision)-resources-programs-goals. Usually, a system (or subsystem) has several goals, which can be achieved in different ways. For Suning, it is important to identify all the factors, or at least the main ones that help to achieve the set goals, and to implement the system taking into account the importance of each factor to achieve the final goal, or to

establish a certain sequence between them. For this, a goal tree (MD), i.e., an organized level of goals representing internal interactions and subordination, is built.

The main tasks of the motor transport engineer-technical service in different positions (state, region, economy, industry) are generally as follows.

1. To determine the technical policy of the network, association and enterprises on ensuring the technical exploitation of the active content. The technical policy is organized on the basis of the existing economic mechanism and legislation, the program of scientific and technical development, the state and work experience of this industry, the anticipation of its development, the available resources and limitations, and the completed scientific research works. The technical policy should ensure the required level of performance, technical operation of the automobile industry, and ways of ecological and resource-saving development.

The technical policy is implemented through the economic mechanism that keeps the enterprise's self-sufficiency and economic account in autumn. This includes the network program, progressive normative, design and technological documents.

2. Production of normative-technological and project documents for implementation of technical policy and delivery to executors.

3. Planning, organization and management of maintenance, repair and maintenance of IT equipment in motion. Correcting resourceful and quick norms taking into account the operational conditions.

4. Improvement and rationalization of the ICH technical base, development of measures for its reconstruction and technical re-equipment, mechanization and robotization of TXK and JT.

5. Organization of material technical supply and storage of operational materials and technological equipment.

6. Saving all kinds of resources, in the first place labor and fuel energy, as well as capital costs. Collection, processing and regeneration of materials.

7. Analysis of the technical conditions of the active structure of IT, technical base of ICH, technological equipment and reserves of ICH.

8. Organization of the internal economic account of maintenance (TSK) and repair (T) of rolling stock, technological and other equipment, elements of the ICH technical base.

9. Import and registration of vehicles and technological equipment

make a plan for its deletion. The composition of the price of the car by age manage. Their technical, taking into account the operating conditions evaluating their circumstances and developing proposals for their use.

10. Providing MTX with employees, their cultural and household, improvement of working conditions, material and moral stimulation of employees improvement of standards.

11. Preparation of the enterprise for acceptance and operation of new types and designs of vehicles, as well as new operating materials, equipment and computers.

12. Generalization, distribution and implementation of the leading achievements of technical operation.

13. Organization of domestic account with transport service. To control the proper technical operation of vehicles on the line and set requirements for the transport service.

To study the influence of the skills of drivers on the technical condition of cars, to organize their training.

14. To set requirements for the necessary production networks regarding the improvement of the content in motion, the quality of operational materials, the quality of the scale of road construction and its operation. Organization of quality control of operating materials and spare parts.

15. Restoration and partial production of rare parts, materials and equipment.

16. Improvement and re-equipment of some special vehicles not used in production (ICH) (factories).

As mentioned above, one of the main tasks of TXK is action is to keep the technical condition of the joints operational.

A single vertex, called the root, corresponds to the main goal (high-level goal).

The higher goal is connected with lower goals through lines (branches) that describe the relationship between goals of different levels.

2.2. Understanding of the system and its relationships

A system is a set of elements that interact and form a certain unity. For example, a car consisting of a number of aggregates into systems of various complexity, a combination of various enterprises, etc.

One of the manifestations of the relationship between the goals of different levels can be the importance of r_i km, that is, the contribution of the $(i+1)$ level m issue to the achievement of the k -goal of the i -level. The following signs are accepted for r_i km: i - the target level from which the branch comes out; ordinal number of the target vertex of the m_i -level from which the k -branch emerges; The ordinal number of the $(i+1)$ degree vertex that the m -branch enters.

The order number $R_0 01=0.5$ means that the contribution of $M_1 1$ is 0.5 (50%).

A model like MD belongs to the inappropriate class, because lower-level goals are necessary to form higher-level goals, so lower-level goals are subordinate to higher ones. So, among the factors of the same level (except the lower and upper), there is an addition, relationship, and among the factors of different levels - subordination.

The goal of the system is defined by goal criteria (MM), which quantitatively and qualitatively describe the state of the system when the requirements are fully met or the set tasks are performed.

The possible state of the system is determined by the target indicators (MC), i.e., the level of fulfillment of normative goals in the presence of temporary, resource or other limitations. This includes the planned and actual value of the technical readiness coefficient, the price of the operating motor transport enterprise (ATK) in the design (target standard) of the production base and the actual price of the production base, It can be characteristic examples of the periodicity of light and current. The ratio of the goal and standard to the goal indicator represents the level of goal realization.

It provides appropriate resources, material and technical base and a certain content and task management system to fulfill the task before MTX. In the new economic conditions, the main functions of high-ranking organizations (Ministry, concern, association and associations) are as follows:

Creating conditions for social orientation to the development of the network and a group of enterprises, improving the working conditions and living conditions of employees; construction (prediction), production and implementation of enterprise and association (intensive fair, balanced, resource-saving and ecological development technical policy) on the basis of ITR, which ensures satisfaction of the national economy and population's demand for transport services; more important (predictable) foresight, research, research and experimental design work, to determine the main directions, to apply and to provide funds in a centralized manner; the representative of

the represented enterprise is a superior plan, funder, in the interest of the network. it is necessary to protect in economic organizations and regional bodies and when working with a partner customer, supplier; scientific, project, technological, normative, design, intermediary service to enterprises and organizations that requires the construction of scientific and engineering forces and resources service with the conditions of the economic account, for example, the main standard. a download adjuster, design, use of computer equipment and software, etc.; participating in the training of targeted personnel and improving their qualifications together with educational institutions.

Important questions defining the technical policy of the network for ensuring the technical operation of vehicles, normative and technological materials are developed taking into account the best experiences of ourselves and foreign scientific research, project and standardization organizations, and the ministry is in this field. are considered and discussed in the section on, and a recommendation is made for their implementation. A number of economic functions, including economic accounting, can be performed by other departments of the Ministry.

2.3. Government decisions and laws related to the development of technical systems

Law of the Republic of Uzbekistan "On Motor Transport". (August 29, 1998)

Law of the Republic of Uzbekistan "On Urban Passenger Transport". (April 25, 1997).

Measures to eliminate monopolies and improve the organizational structure of management in the field of road transport of Uzbekistan are the Decree of the President No. PF-2871 of June 4, 2001 and the Decision of the Cabinet of Ministers No. 245 of June 5, 2001.

Resolution No. 296 of the Cabinet of Ministers of the Republic of Uzbekistan dated June 11, 1998 "On the establishment of the Agency of Road and River Transport of Uzbekistan".

2.3.1. Law "On Motor Transport".

The purpose of this law is to form the legal basis of motor transport activities in the Republic of Uzbekistan. The following basic concepts are used in the law:

- production-technological complex, which includes legal entities and natural persons, providing the needs of passengers, luggage and cargo, including mail (passenger, luggage, cargo) by car;
- motor vehicles - cars designed for the transportation of passengers, luggage, cargo and special work, tractors, trailers and semi-trailers;
- a legal entity or an individual who owns a motor vehicle on the basis of carrier-property rights or other material rights, provides passenger and baggage transportation services on a commercial basis and has a special permit (license) for this;
- customer (passenger, consignee, consignor) - a legal or physical person who uses the carrier's services in accordance with the transportation contract;

Legal documents on motor transport consist of this law and other legal documents.

Relations in the field of urban passenger transport are also regulated by the Law of the Republic of Uzbekistan "On Urban Passenger Transport". The rules for ensuring the

safety of passenger, baggage and cargo transportation are approved by the Cabinet of Ministers of the Republic of Uzbekistan. If the regulations of the Republic of Uzbekistan on road transport are different from those stipulated in the documents of the law of the Republic of Uzbekistan, the rules of the international agreement shall be applied. The law consists of 31 articles, which include the types of car transportation, licensing, standardization, the main powers of local bodies of state law, the work of car transport in emergency situations, etc. and was approved by the decision of the Oliy Majlis on August 29, 1998.

2.3.2 Law "On City Passenger Transport".

- The purpose of this law is to organize work in the cities of the Republic of Uzbekistan on the basis of the law "On Urban Passenger Transport" and form the legal basis.
- The law applies to urban passenger transport entities in the city of Tashkent, cities under the jurisdiction of the region and district, as well as in towns.
- - Urban passenger transport is within the territory of the Republic of Uzbekistan
- registered, for the transportation of passengers and luggage within the city
- means intended automobile and electric transport. City passengers
- Transport can be public or private.
- - City passenger transport includes buses, trams, trolleybuses, metro, directional and non-directional taxis. Buses, trams, trolleybuses, metro and route taxis transport passengers in the specified direction, according to the timetable, for a fee of the specified tariff. Taxis without directions provide transport services for a fee according to the taximeter (meter) based on the requests of passengers.
- - The law consists of 27 articles, passenger transport under agencies, passenger transport contract, main duties of the carrier, state management of urban passenger transport, licensing of urban passenger transport, passenger rights, obligations of passengers and other articles. The law was approved by the decision of the Oliy Majlis on April 25, 1997 and entered into force by the decree of the President of April 25, 1997.

2.3.3. Decree of the President of the Republic of Uzbekistan dated June 4, 2001 No. PF-2871 "On exiting the monopoly and improving management in the field of automobile transport".

This decree was adopted in order to deepen the process of leaving the monopoly in the field of road transport, to form market relations and to create a competitive environment in the market of transport services, to improve the management system of road and river transport.

The following were defined as the main directions of improving management and deepening the exit from monopoly in the field of automobile and river transport;

- market relations in the field of passenger and cargo transportation in motor vehicles and further development of the competitive environment, automobile transport organizations and large-scale privatization of enterprises, the same for private car carriers creating conditions;

- elimination of redundant links in the management of cargo and passenger transport in road and river transport, transition to a one- and two-link system of management;
 - decentralization of management in road transport and coordination of the activities of enterprises that transport passengers by car, transport goods within the region, and provide transport-use and information services, transfer the functions of retraining personnel in the field of car passenger and cargo transportation directly to regional and city governments;
 - strengthening measures for the safety of passenger transport, by car protection of the rights of consumers in the field of passenger and cargo transportation create a strong system of insurance, transport services system
- development of the independent market is shown.

By the same decree, Uzbek automobile transport transformed State-Joint-Stock concerns and associations into territorial associations of carriers by car, which included the liquidation of the Territorial State-Joint-Stock carpentry and the liquidation "Uzavtotrans", while the proposal to transfer them to the disposal of the regions and municipal Enterprises was adopted. The issues of forming a policy of definition of motor transport services are assigned to the Ministry of Finance of the Republic of Uzbekistan and the Uzbek Agency of automobile and river transport.

To implement this decree, the Cabinet of Ministers of the Republic of Uzbekistan adopted the Resolution No. 245 on June 5, 2001.

2.3.4. 0 resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated June 11, 1998 No. 296

- "On the establishment of the Uzbek Agency of automobile and river transport".
- 1. General rules. The Uzbek Agency of automobile and river transport (hereinafter referred to as the agency) is a public administration body in the field of automobile and River transport, regulates and controls compliance with transport legislation, safety rules and environmental requirements when using automobile and river transport.
- - In its activities, the agency adheres to the Constitution of the Republic of Uzbekistan, the laws of the Republic of Uzbekistan , other decisions of the Oliy Majlis of the Republic of Uzbekistan, decrees and orders of the president of the Republic of Uzbekistan, resolutions and orders of the Cabinet of Ministers of the Republic of Uzbekistan and decisions in the regions.
- - The agency reports to the Cabinet of Ministers of the Republic of Uzbekistan in its activities.
- - The agency solves the tasks assigned to it in cooperation with the Council of Ministers of the Republic of Karakalpakstan, the khokimliks of the regions and the city of Tashkent, the Ministry of internal affairs of the Republic of Uzbekistan, the state tax committee.
- - The agency is a legal entity, will have a completed balance sheet, settlement and currency accounts at the banking institution.
- - The agency will have a fan with the image of the state emblem of the Republic of Uzbekistan, whose name is written in the state language of the Republic of Uzbekistan.

2.3. Concept of management

Management is said to be a system of influence on an object on the basis of existing legislative rules, regulations. Management can be likened to drejor and arkestre. Management is the principles, methods, tools and forms of Enterprise Management in order to improve production management, production efficiency and its usefulness.

Management is a process of integration, a combination of processes, the presence of order and non-major relations between subjects and objects, the achievement of a new quality as a result of the organizational formalization of integrity, unity and this unity, the decision of new forms of relations and cooperation. A specialist trained in the field, with the help of a manager, organizes enterprises and manages them by being able to set goals for them and developing ways to achieve them.

The process of management implies the implementation of such functions as planning, organization, coordination, inclination, control. Being able to use them, the manager creates conditions for employees at the enterprise to work efficiently and efficiently, in accordance with the relevant goals of the enterprise. Therefore, management is again the ability to direct the employees working at the enterprise to their goals, the behavior of Labor, intelligence, inclinations of people.

The content and methods of management will change depending on the place of the technician in the management process. For example: workers, engineers, technicians, workshops, enterprise management.

The main stages of management include:

- determining the purpose of the system;
- obtaining information about the state of the system;
- processing and extracting information;
- management decision making;
- to convey the decision to the performer;
- implementation of management decision and System decision
get attitude.

The goal facing technical exploitation should be inextricably linked with the goal of the system above it, and the goal of the next should correspond to the goal of the national economy.

When developing activities to increase the coefficient of technical training (KTK), information about the state of the system will serve as:

- operational reliability of cars;
- malfunctions that occur widely and leave cars out of order
information about;
- information about the causes of malfunctions.

External factors in this case are the conditions of operation of cars, material and technical support, etc.k.enters.

When analyzing and processing data, their accuracy, authenticity, completeness and value are assessed.

It is said to choose one of several ways of development that will significantly change the state of the system as a management decision.

When delivering a decision to execution, its accuracy, the same meaning are important.

The implementation of the management decision is, for example, the implementation of new methods and forms of renewal of the car fleet, reconstruction of the production base, stimulation of car repair, repair work.

As a control process, it is understood as a set of actions taken in the target direction in order to transfer the managed system from its initial state to its final State, established from the advanced one. The control process consists of 3 stages:

The first stage is the collection of the necessary information and the assessment of the state of the object and the external environment on its basis; its purpose is to provide the necessary information for decision - making of the management process.

The second stage is management decision - making.

The third stage is to ensure the timely reaction of participants in the economic production process.

It is said that the body that performs the management process of all three stages is the production and economy management body.

The production and economic management system solves the following issues:

- formation of production structure;
- development of organizational content;
- offering methods of their activity;
- construction of an information support system.

The number of independent networks in the Republic increases from 20, and the number of enterprises-from 100 thousand. The development of each of them, mutual coordination with each other, placement in the country's territory and determination of the demand for products (services)are very complex, comprehensive issues facing the network management system.

Questions for supervision.

1. Explain the two-pole style of control?
2. Understand the content of the program?
3. What do you mean by the system?
4. MD-Tree of goals, what is the task of the MTmaqsadlar system?
5. Understand goal norms (MM)?
6. Law of the Republic of Uzbekistan "on automobile transport" when was it accepted?
7. Tell the Leprechaun of the automobile Transport Act?
8. The Republic of Uzbekistan "on urban passenger transport" your understanding of the law?
9. Monopolization of the automobile transport sector of Uzbekistan what is the purpose?
10. Why did it become necessary to improve the management of automobile transport?
11. Functions of the Republican agency "uzavtodaryotrans".
12. What is a license? B.Who is autolitsy given to?

3-Lecture: Production structures of technical systems and factors affecting them

Study plan:

- 3.1. Production structures of technical systems and factors affecting them
- 3.2. Sample variants of production structures

3.1. Production structures of technical systems and factors affecting them

The organizational ICH composition of MTX is understood as the number, size, functional function, interaction and communication manifestations of ICH bulinmas and their composition, which are listed in the order of the stylistic complex.

The composition of the management system is understood as the composition of the equipment that controls the internal troops and their mutual subordination.

As stated in the previous lectures, MTX has certain ICTB and resources, each of which has a source of origin and methods of structure, and they are reflected in the effectiveness of MTX. That is, each of them forms small Uzi systems with a function, composition and, accordingly, control.

The generalized structure of the organizational and production structure of the ATK MTX is shown in figure 3.1.

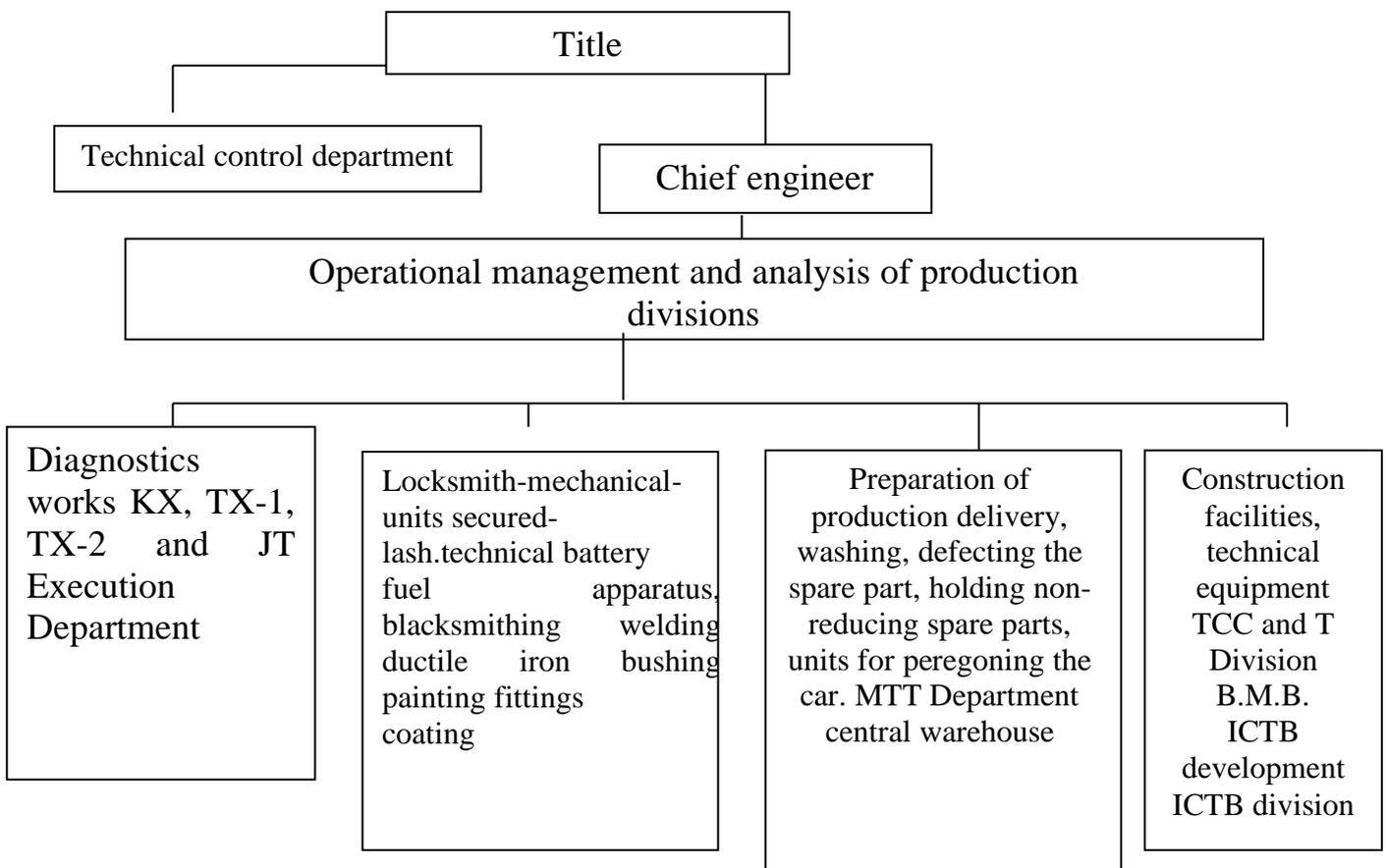


Figure 3.1. Generalized structure of organizational and production structure of ATK MTX

The most future in the organization-production structure of management is the method of targeted application. The difference from management is that it focuses on the most effective way to bring the system towards the goal that is poured in front of it.

Thus, the release of the goals and objectives of the system in the development (creation) of the organizational ICH structure of the MTX and its management system is one of the main requirements of this method. In this case, the strength and chaoticism of the content depends primarily on the structure of the level above itself (ATP, ATO, TPOAT) in the task set before the system, and on the other hand, on the compliance of the requirements for the development and functioning of Uzi.

As previously stated, the purpose of ATK MTX is to ensure the technical readiness of its compounds in the action, in the given terms and nomenclature. To achieve this goal, MTX will have to deal with a number of issues. To do this, he creates an ICH enterprise. In it, it builds the organizational production structure that cars will need for TCC and JT. (- see photo).

For concrete ATK, internal and external factors are taken into account in order to structure the organizational ICH structure of the MTX.

Main internal factors:

- Number and dimensions of the cost of attachments in a technological add-on;
- Mode of operation of ICH;
- The operational intensity of the attachments in the performance;
- The level of development of ICHTB;
- The character of the location of the ICH zones and their separation from the square;
- Number of ICH employees;
- The fact that the divisions can be customized and perform several types of work with them.
- To the main external factors;
- Based on the fact that the top – tier system is subject to purpose, the following are included in the form;
- Centralization of work;
- Incarnation of ICH (concentration);
- Specialisation of ICH;
- Co-operation of ICH.

The presence of the above external factors is aimed at maintaining the technical policy of it, aimed at accelerating the ICH in regional systems, aimed at mechanization, automation and competition.

3.2. Sample options for production compositions.

The structure of the technical service of motor transport enterprises changes with the increase in the capacity and control of ATK to new forms, that is, with the use of branches and main enterprises (motor transport associations).

Below we will get acquainted with some options for the contents of the technical service.

The composition of the technical service of ATK with 50 to 100 cars provides for the following production complexes. Each of these complexes performs a number of functions: TX-1, TX-2, JT, aggregate. Uzel, repair of details.

The work of the KHK is carried out by a separate special group on all means of movement. The work of TX-1, TX-2, JT is also performed by individual groups. In workshops, too, work is performed by individual groups. In some cases, some work is combined.

ATKs with 200 or more cars will create conditions for the specialisation of production.

The TX-2 and JT brigades can make specializations on carburetor and diesel engines.

The technical service of a large ATK forms the following main complexes:

- Complex D-diagnostics of the car, aggregate and uzels;
- TX complex-TX, performs regulations and additional work;
- JT complex-performs current repair work;
- Tu complex-repairs aggregate and uzels removed from cars in repair shops;
- Complex T - a complex for the preparation of production-organizes the supply of material equipment, deflection of units, overhaul, organizes the fund of circulating units.

Questions for supervision.

1. What are the factors that affect the composition of production?
2. What are the external factors that affect the composition of production?
3. What complexes are organized in large ATKs?
4. What units are made up of in the generalized structure of the production structure?

4-Lecture: Forms and methods of organizing maintenance management.

Study plan:

- 4.1. Organizational and production structure of technical service.
- 4.2. Forms and methods of Organization of TCC and T to cars.
- 4.3. Centralized system of management and organization of TCC and T to cars.

4.1. Organizational and production structure of technical service.

The organizational and production structure of the Muxandis technical service is understood as the ordered sum of production departments that determine the number, measure, function, interaction and methods and forms of cooperation.

The composition of the management of the technical service in ATKs can be cited in the form of three functional blocks.

The purpose of the unit of organization is based on its implementation of complex functions, which include indicators of technical service (capacity, production specificity, cooperative size, resource extiality and x.k.) consists in determining the technical readiness of the means of action at the expense of conducting organizational technological events.

The purpose of the operational control unit is to ensure that the production and auxiliary departments operate together. The content of the management function means that the composition of their performers depends on a number of factors in each specific enterprise and association. The list of pre-warehouse functions consists in the fact that

the production facilities and the enterprise performed by the technical service are able to independently carry out these issues, that is, the function of managing the technical service of the bus, transport department or concern depends on the centralized one.

The size of the ATK determines the volume of work of the function. It determines the allocation of a separate performer, depending on the volume of work, or the unification of the performance of several functions by 1 performer.

The distribution of management functions by performers is determined by the organizational and functional content developed and approved by the association, enterprise.

The technical service consists of the following contents:

- Chief Mechanical Department;
- technical control department;
- technical department.

4.2. Forms and methods of Organization of TCC and T to cars.

Three different styles of organization and management of production are now widely used: specialized brigades, complex brigades, aggregate-workshops.

In the method of specialized brigades, separate brigades are created for each type of maintenance (TX) (KX, TX-1, TX-2, diagnostics, current repair, repair of units) (photo).

The composition of the organization of technical service at the ATC in a special brigade way.

4.1 table

ATK technical service production department					
KX brigade	Diagnostic workshop	1st TCC brigade	2nd TCC brigade	JT brigade	Aggregates repair workshop

Depending on the amount of work performed by each brigade, a certain number of employees and a salary fund are planned. The privatization of brigades leads to an increase in labor productivity of workers at the expense of the use of new technology and mechanization, the formation of skills in workers for work performed equally. When organizing work in this way, it allows you to quickly control production, effectively use technological equipment, spare parts, tooling equipment.

One of the main disadvantages of this method is insufficient personal responsibility for the work performed by workers. If one of the complex systems of the car fails, it will be difficult to determine its cause, the main culprit, since this unit is repaired and maintained by employees of various departments (workshops).

In the method of complex brigades, brigades perform the work of TX-1, TX-2 and JT on cars of a certain group (columns, cars with a diesel or carburetor engine, trailer, semi - trailer) (Table 6).

The composition of the organization of the technical service at the ATK by the method of complex brigades.

ATK technical service production department				
KHK workshop	Diagnostic workshop	1-txg, 2-txg, CT 1st complex brigade	1-txg, 2-txg, CT 1st complex brigade	Unit repair workshop

KX, diagnostics, repair of units are carried out centrally. Kompelks brigades are made up of various Sokha specialist workers (auto-locksmith, locksmith-adjuster, electrician, oilman) and perform work attached to the brigade.

When the production is organized by the method of complex brigades, personal responsibility for the quality of work is maintained at the limit of the brigade, that is, the shortcomings inherent in the specialised brigade method are also preserved in this method. In addition, each brigade must have working posts, universal technological equipment and equipment, a reserve of spare parts and circulating units to carry out the TX and T work of Uzi.

In this method, equipment, material resources are scattered throughout the brigades and do not allow them to be used effectively, complicating the management of the work of TX and T. Work on brigades may not be of the same size, that is, if one brigade is busy with work in excess of the norm, then at this time the second brigade may be low-income with work. In the same Kator, one of the advantages of this method is that the quality of the work of TX and T is formed by the specialty brigade.

The main plus of the aggregate workshop method is that ATK the maintenance and repair work of the means of movement is distributed among the production workshops, and each workshop is assigned the responsibility of one or more units to complete the full TCC and T work.

In this method, material and moral responsibility is concretized for the quality of work on the repair and maintenance of units and tracts attached to the workshop. The results of the work of the workshops are estimated depending on the period of stay in the repair of cars for technical malfunctions.

Among their workshops, work is distributed depending on the production program and the intensity of the use of means of movement.

In large and medium-sized ATKs, the number of workshops will be from 4 to 8.

The work attached to the workshops is carried out both in working posts and in workshops.

Aggregate workshops have disadvantages despite the fact that the method has unconditional advantages over the methods seen above. One of the main disadvantages is the decentralization of production, which makes it difficult to quickly manage production. The lack of information about the departure of repair work on the car does not allow the effective use of production sites. In the posts, cars can wait in line, which can lead to the emergence of discord among some workshops.

The distribution of cars arriving at the TCC and T among workshops does not allow planning the time of completion of repair work. In order to eliminate these

shortcomings, a centralized system of management of TCC and T Works is implemented in ATCs.

ATK technical service production department

The composition of the organization of the technical service at the ATK by the aggregate - workshops method.

4.3- table

№1	№2	№3	№4	№5	№6	№7	№8
Steering head-aging, front Bridge, TCC and T to the brake system	To the engine Txg and T	Performance coupling, transmission, reducer, Cardan transmission TX and T	Supply system, electrical equipment, battery to TCC and T T	Body, rama, cabin, TCC and T welding, blacksmithing, painting works	TXK and T to tires and wheels	Locksmith mechanical work	Sweeping washing works

The main part of the general problem of improving the labor efficiency of repairers and auxiliary workers, raising the position of TCC and T, increasing the efficiency of it.

Based on the analysis of the unsatisfactory effect of the work of the TCC and T, the reasons for its origin can be divided into 2 parts.

These are objective and organizational reasons.

Objective reasons

4.4-table

		partial values (%)
1.	Lack of spare parts	4
	Working conditions	10
3.	Park age	18
4.	Slow production base	15
5.	Other (lack of worker, low repair quality in Atz)	18
	All	65

Tashkiliy sabablar

4.5- table

		partial values (%)
1.	Low labor discipline	11
2.	Free Organization of work	18
3.	Failure to work for organizational and other reasons	6
	All	35

4.3. Centralized system of management and organization of TCC and T to cars.

Advanced ATC experiments and studies show that effective regulation of the issue of production organization can be achieved through centralized management of TCC and T production of content in ATC activities. The new system for organizing and managing the production of TCC and T to the content in the action received the name centralized management system (IMBT).

The implementation of this system is the first stage of the automated control system (ABT) of the mukhandis-technical service in ATK.

Centralized management considers compliance with the parties. It is important to be clear about the administrative and operational tasks among the senior staff and the location of the operational management function in one center or in the production management department (IMBT or ICHBB).

The main task of a centralized production management system is to plan and control the activities of production departments on the basis of existing data, as well as to solve and process information about the amount of work performed and production resources.

The production management center consists of two departments: the operational management department (TBB) and the information processing and evacuation Department (MIBTqB).

1. The content in the action is organized on the basis of the formation of production departments of the TCC and T from the technological side, which respond to the activities of a centralized management system. In this case, each technical effect is performed on specialized brigades or plots (KTXK, 1st TXX, 2nd TXX, JT, etc.).

2. Production departments (brigades, plots) performing the same technological work merge into production complexes in order to facilitate their management.

3. Atkn MTX includes the following production complexes:

4. TXX and diagnostic (TXKD) complex, which combines the ktxk, 1st TXX, 2nd TXX and diagnostic brigades;

5. JT complex, in which the departments that carry out the repair work of the car itself combine;

6. The repair site (TU) complex, in which the sections occupied in the restoration of aggregates, networks and details converge.

The transport plot, the driver-shifters move automobiles. Storage of cars in the waiting region for repair carries out transportation of heavy aggregate, network and details.

In the centralized – accelerated control system of production, means of communication, automotive, telemechanics and sensing techniques are used. At the first stage, the system can actively work with a dispersing communication and office equipment.

The technical service of ATK includes, in addition to the above-considered Production Control Center, production complexes and production preparation complex, the following departments:

Technical department;

Department of general mechanics (BMB);

Material Technical Supply Department (MTTB);

Technical control department (TNB).

The composition of the technical service in relation to the capacity and local conditions of the enterprise, while maintaining principled circumstances, may practically not change.

The head of IMBT is in charge, the main operational work on management is carried out by the OBB dispatcher and their assistants-technical operators. The number of IMBT employees is determined by the total amount of work they perform (by the number of cars in the ATK, the availability of control technical means, etc.).

Documentation and documentation used in the management and organization of production.

When making a decision on the technical operation of cars, two types of information are used:

- probability-describes the state of objects and gives an idea of the average values of indicators.

- describes the state or indicator of an individual-concrete object.

In the probabilistic method-for statistical evaluation, the data collected as a result of observations are processed using mathematical methods and a decision is made.

In an Individual way, information is collected from reports or by measuring the exact details. In an Individual way, information is obtained using diagnostic stands to measure the parameters of the technical condition of the car and its units.

With the technological processes of ATK, with the introduction of new techniques and technologies, the Production Association "Auto Engineering" is engaged.

The primary source of information is various documents used in ATK.

Documents must be convenient and suitable for work at EXM. In addition, the information contained in the documents must satisfy a number of requirements:

- the information must be clear and complete;
- it should be small in size and wide in meaning;
- the information must be short and understandable, the numbers presented must be unprocessed.

In the management of production in ATK, the following primary documents are used:

1. Repair sheet (TX and T accounting sheet);
2. Spare parts requirement;
3. Car personal card;
4. TX plan-account.

In addition to these, various documents are used in ATK. Below we will get acquainted with the composition of the main documents.

Ta`mirlash varaqasini tarkibi

4.6- table

Aldi side			Side by side	
Repair sheet			Signs that spare parts and materials are given	
Description of the appearance of the malfunction	Repair-formulated statement of adjustment operations	TNB ni sign of failure elimination	Sign about the work done in practice	
			Waiting zone duty sign	Uzels that ensure the safety of the car
Signature of the person who issued the application			about status control	
Car details	Date and time of demand fulfillment			

Questions for supervision.

1. What is the procedure for filling the order-naryad at the enterprises of the TCC for cars explained?
2. Management of the production process at the enterprise TCC for cars what should be the status?
3. What is included in the methods of controlling the process of providing technical service?
4. How is the technical control process carried out?
5. Explain the manifestations of technical control?
6. Ensuring the safety of movement of cars that are in repair bring down the elements?
7. How to determine the quality of technical service delivery?
8. What is the service quality loot and quality account function?
9. How is the TCC defects account maintained and analyzed?
10. How are defects detected and taken action in TCC and T?
11. Is the coefficient of quality of labor at the TCC calculated and encouraged?

5-Lecture: The content, tasks and staff of the technical service of modern motor transport enterprises.

Study plan:

- 5.1. Resources and employees of associations of modern autotransport Enterprises, Joint-Stock Companies.
- 5.2. General classification of the composition of maintenance personnel, landing
- 5.3. The main requirements for specialists and the provision of enterprises with them.
- 5.1. Resources and employees of associations of modern autotransport Enterprises, Joint-Stock Companies.

The transition to a technical market economy in the Republic of Uzbekistan, the implementation of new laws, the decentralization of management of material and technical supply, the application of various forms of ownership set complex tasks before motor transport enterprises. These tasks are composed of:

- creation of conditions for improving the working and living conditions of employees, the implementation of the directions of social development of enterprises and the Sokha;
- implementation, forecasting and development of the technical system of ecological, resource-saving, intensive development of enterprises;
- identification and application of the main directions of research and design work;
- provision of scientific, technological, regulatory services.
- participation in the training of targeted personnel and their professional development together with educational institutions.

The basis and resources of the technical service of automobile transport mukhandis-consists of a complex of contents as follows:

1. Production technical base.
2. MTX means of action with certain technical operational properties, which is a product of Labor.
3. Material and technical resources (spare parts, tire oils, materials and etc.)o.)

4. Development of the technical base of production new cars financial resources for the purchase of technological gadgets.
5. Scientific engineers-technical personnel, repair and auxiliary workers.
6. Information provision of MTX for quick management of TCC and repair of cars.

Modern content of the management of Motor Transport Organizations in order to effectively solve these parables, the following network bodies of management are available:

- Ministries;
- State committees;
- Concerns;
- Corporations;
- Consortia;
- Associations;
- Companies;
- Enterprises;
- Firm and others.

These bodies are in contrast to the state and local bodies, the governing not just as an executive in the system, but as a managing system as a participant, he comes out on the field.

The sectoral bodies of management are usually formed from the state and local authorities.

It differs in the size (quantity) of its activity. It ' hould be known for their will be reflected in the regulations.

The ministry is the highest in management in the economic system of the network to which it belongs

is the link. Ministry:

- The behavior of the network, its further development;
- Technological level of development and production (service)of Science and technology;
- The quality of the manufactured product and its competitiveness;
- Internal and external demand for manufactured products responsible for satisfaction.

State committees are the regulation of the activities of ministries and departments, social and economic development through control and coordination central network intended to guide the activities of menejment organs.

Concern is the diversification (change, variety) of production is a large, multidisciplinary corporation that finds content on the basis of (increased) growth. His the structure belongs to various industries (industry, transport, trade, banking) enterprises enter on a voluntary basis.

The association is a voluntary public Association of individuals and legal entities. The association is a voluntary association of enterprises on a pay basis. He is a or the joint implementation of several production and economic tasks established as a result of the merger of enterprises on a contractual basis in order to finds. The structure of the association, usually located and related to a particular territory the profession includes specialized enterprises.

The corporation is a developed large stock companies and trusts is a combination of.

The consortium is an interim Association formed with the aim of implementing specific tasks: large-purpose programs and projects, including scientific and technical, construction, nature conservation, and other programs.

The holding company is primarily a financial fund that provides enterprises with not combines investments. Shareholder societies that are part of the holding company "control package of shares" will be at the disposal of koipania.

The National Company is non-production networks, creative teams, transport, it is a volunteer association of communication and telecommunications enterprises and organizations, which is organized on the basis of paychecks or promotions.

Enterprise-this is the main and primary link in any economic system. In the law on the enterprise, the enterprise is an economic entity that has the rights of a legal entity, produces, sells or exchanges products on the basis of the use of property belonging to it or on a full economic basis, performs work, provides services.

A firm is a company that, in contrast to an enterprise, denotes a diverse entrepreneurial activity in the production and non - production sectors.

In order to organize the service process in motor transport enterprises it consists in the work of the car on the road and their maintenance, as well as their repair. The service process is the execution of various operations: that is, from the execution of operations related to the organization of the movement, the provision of a tool in a technically flawless movement and its regular provision with the necessary funds, accounting, calculation, establishment of financial ties with customers.

The work of the vehicle in motion on the road is a process of changing the position of cargo and passengers between certain places. The transportation system in transport is made up of sequential execution processes below:

loading cargo on a means of movement in places of shipment or transferring passengers;

displacement of cargo and passengers between animated and designated areas;

unloading from the means in motion in places where cargo is taken and lowered.

The service unit for the use of motor transport enterprises organizes the implementation of the transportation plan, looking for opportunities to rationally carry out this transportation at low cost.

Heads and employees of the service department should pay close attention to the following issues:

- to study the economy of the territory served by the enterprise, classification of cargo and passenger flows, operational planning of Transportation, checking the level of customer readiness for transportation, the state of loading unloading areas and access roads, the possibility of applying auto trains, loading and unloading means:

- to develop the procedure for the release of cars and the procedure for their operation in cooperation with the technical service department, to correctly and timely formalize documents, to increase the efficiency of vehicle use;

- the correct application of definitions to the exchange of advanced experience, the systematic implementation of the transportation plan and analysis of the implementation of contracts, ensuring a comprehensive reduction in transportation costs.

The departments are headed by the head of the use service unit and have in its composition transportation planning, a centralized precision unit, off - road precision and accounting-control groups. Among these, the division includes auto plants.

The group for organizing the movement of passenger transport enterprises is engaged in the rationing of the speed of movement of buses in the commuting direction. This group develops a rational order in the work of bus drivers, distributes buses to routes.

The nazimli group will lead the car business from the time of rapid planning and release of cars to the moment of their return to the enterprise.

Accounting the nazorot group checks the drivers for the waybill and their correct clearance, gives them a primary processing, on the basis of which they report to the work performed for transportation.

And the group that ensures the absence of traffic, develops measures to prevent traffic accidents and takes measures to ensure the non-violation of street traffic rules, checks the expiration of the period of increasing the experience of its drivers, takes into account traffic accidents and street traffic rules on motor transport and enterprise.

The use of the vehicle the use of the service unit the head of the Department manages the work process as follows. It provides all the action content at the enterprise with work, fuel and requires the implementation of the Daily plan: the heads of the car dealership under it, the duty officer and the mechanic and the co-workers, and ensures that the driver who goes to work by writing down the daily task on the road leaflet. The position on the line is controlled by duty nozzles. For example, the cargo on the line takes action at the time of examining the cause of the cancellation of the loading in the parking lots. The duty officer on the line in passenger transport motor vehicles will take action by examining the situation from nozim or avtoshox and autoboshbekats. Determining the reserve of the provision of the collar, filling it with an immature sleeve, controls the course of the monthly plan, takes measures to compensate for the size of the immature, if there is a lag behind the plan.

Operation the head of the department in the evening learns in time the reason for the failure to fulfill the plan of the car returning from each line through the heads of duty officers, mechanics, auto professionals and takes the necessary measure. Examines the reason for the failure to fulfill the plan, and also takes appropriate measures in relation to them. In addition, in order to ensure the safety of the activity: daily (duty officer Nazim masul), weekly (head of the car service Ma'sul), monthly (use head of the Department Ma'sul) work controls the modes. Provides a service, ensuring that the entrance fee is charged in advance. Car distribution on buyritma for the next day and puts the fuel supply to them on the road. Takes action over the irregularities, prepares the order. The duty officer performs the following work in the nazim shift: in the morning, he checks the drivers for their witness and writes them a road leaflet, puts them to work, in the evening, when the drivers return from work, checks them for their plan, if the plan fails to use it sends it to the head of the department, accepts the road At the passenger transport enterprise ,the duty officer compares Nazim and the treasurer's bills to each other, eliminating errors.

Management with nozzles in the cargo carrier ATK is divided into regulation inside the palace and on the road. The task of regulating the subtleties within the palace is performed by the central Nazim group, the work of the car on the road is regulated by

the control group of nazim on the road. Employees of the off-road control group are subordinate to the central off-road group.

The work of the central Nazim group is managed by the nazim of the ATK, the duty of which includes: constant control over the timely release of the car on the road; analysis of the implementation of the Daily plan and drawing up operational information about the implementation of the transportation in one day; amalgamation of operational factors aimed at increasing the efficiency Quick regulation of the work of the car is carried out by ATK duty Nazim.

Nazim on duty allows haidochi, who went to work every morning, to get it on the road leaflet, setting the fuel norm for daily work. The guide, on the other hand, takes it, puts himself the signature of consent on the waybill. This means that if he uses more than the given norm, his guilt will be considered, he will pay off excess spending, or if he does economics, he will pay for it. The operating department is given a Fuel Fund for the volume of work performed. Therefore, it is advisable to develop a plan for bringing income for the consumption of 1 liter of fuel, as well as to report on this basis. The norm is for 1 tkm in Freight Transport, for 1 passenger on a city bus, for 1 passenger km in intercity buses, 1 car hour in hourly freight transport. The Daily path is processed into a leaflet by the use department nozzle.

When shipping: on the basis of the TTN issued by the client, tkm, ton, (mesh hour for hourly) the total walking path, the number of flights performed is determined, based on which the salary is calculated, daily reports are drawn up.

On transport by bus: as a result of the processing of the road leaflet: the total worked time per day, the total road, the commute made, from which the graph is followed commute, the quoted income, the number of passengers transported, the Walking passenger km.

When transporting a passenger taxi: as a result of the processing of the road leaflet: the total worked time per day, the total road, the paid Road, the listed income, the coefficient of road use are determined, an assessment of the state is made by comparing these indicators to the plan. The indicator is discussed unfulfilled car dealership, brigade, driver, and the deadline for completing the backlog is set for him. It is determined whether the culprit will remain at work and not if this vasiat continues.

Liniyadagi xarakatdagi tarkibni ish samaradorligini oshirish uchun quyidagi muolajalar amalga oshiriladi.

1. In cargo transportation: effective routes(pendulum, Rotary, surface-mounted) are formed, the coefficient of use of the carrying capacity is increased, the work to be carried out is normalized taking into account all the conditions(road condition: roadless road and roads of different categories), tariffs are established, the distance of Transportation is measured. Cargo transportation the number of content in the action is adjusted to the productivity of the loading unloading mechanism at the facility.

2. In transport by buses: passenger flow, total working time per day, total road, commute made, of which the graph is followed commute, quoted income, number of passengers transported, walking passenger km. The income burden quoted per kilometer is determined and compared to the income burden on the account, which must be found with these costs. If the route works to the detriment, then the route will be revised and improved, as it were, the flow of passengers on the route on which the bus is running will be studied, and the drivers will be amended to the income plan.

3. When transporting a passenger taxi: one-paying km, one hour cancellation stand

at the customer, the daily total worked time will be calculated from the date of entry for the departures, the total traffic, the toll road, the listed income, the coefficient of use of the road will be determined. It is advisable to organize work in a rental style (dry, partially resource, full-resource), in which the situation in transportation is studied. Thus, in the organization of management on the line, work is mainly always carried out on the slogan "y'oşan fee".

Auto racing the purpose of the organization is to collect transport of various ownership into one enterprise and ensure their activity in the transport of goods and passengers in a certain direction. Auto racing may have adapted to cargo and passenger traffic. His charter and bank account number will be located in a certain direction. For example: LLC "Yosinbek trans". Community address: Namangan city, Samarkand Street 20. **Rights and obligations of the participants of the society.**

1. Jamiyat ta' sischilari quydagilarga haqlidirlar:

- participation in the management of the affairs of society in the manner prescribed by law and in the constituent entities of society;

- to obtain information about the activities of the society in accordance with the procedure established by the laws and the constituent entities of the society and to familiarize with its accounting books and other documents;

- participation in profit distribution;

- to sell or in any way to their favor to one or more founders of this society in the manner prescribed by this law and the Charter of the Society of their share or part of it in the authorized fund of the society;

- exit from society at any time in accordance with the procedure provided for by this law and the constituent entities of the society, regardless of the consent of the other founders of the society;

- obtaining part or its value of the property remaining after settlement with creditors in case of liquidation of society;

- the founders of the society may also have other rights stipulated by the law and the constituent powers of the society.

Founders of the society:

- contributions in order, quantity, methods and terms provided for by law and in the constituent entities of society;

- they are obliged not to disclose information kept secret about the activities of society.

Management in society.

1. The general meeting of the participants of the society is the supreme body of Public Administration.

2. The management of the current activities of the community is carried out by the director.

3. The sentence of the absolute competence of the general meeting of the participants of the Society includes the following:

- determination of the main areas of activity of society, as well as commercial decision-making of their organizations to participate in other associations;

- changing the amount of the authorized fund of society;

- amendments and additions to the Constituent documents;

- formation of the executive bodies of society and premature termination of their powers;
- election of the Audit Commission of the society and early termination of its powers;
- approval of annual reports and balance sheets;
- making a decision on the distribution of the net profit of society among the participants in the society;
- approval of documents regulating the activities of public bodies;
- making a decision on the conduct of an audit, determining the maximum amount of tax payable to audit organizations and their services;
- decision to establish other legal entities, representative offices and branches reception;
- decision to reorganize or end Society;
- appointment of the liquidation Commission and approval of liquidation balances;
- the conclusion by society of large transactions with a minimum monthly salary of more than 100 times;
- resolution of other issues provided for by this law.

4. Community director:

- acts on behalf of society without a power of attorney, including representing its interests and concluding agreements;
- gives power of attorney for the right to represent on behalf of society;
- concludes labor contracts with employees of the society and terminates them, applies incentive measures and disciplinary penalties to employees;
- organizes the implementation of the decisions of the participants, chemo the interests of the society on all issues affecting the activities of the society in relations with enterprises, institutions, organizations and public figures.

5. The director conducts and responds to the financial and economic activities of the society on the basis of the current laws of the Republic of Uzbekistan.

6. Participants over the financial and economic activities of the director lead.

7. Transactions in which the director and other officials of the society are interested in its structure cannot be concluded by the society without the consent of the general meeting of participants in the society.

In the structure of auto-training will be the following tools and service personnel. For inspection of cars, equipped pit (yama), transport inspection instruments (bolga, tire pressure gauge, and other in-app instruments) are on duty mechanical, nosim, medical officer conducting a medical examination, gaznachi receiving a daily fee, head of the personnel department, and haidovchlar and their vehicles. Autouyushma voluntarily accepts private carriers and other carriers under a certain contract in its composition, organizing the receipt of their license for transportation. Based on the requirements for passenger transportation, each element of the cardholder is organized and licensed by the agency. The purpose of doing so is to provide passengers with responsibility for the directions by the state, and to ensure the quality of transportation, development of competition, ensuring the safety of traffic, to clearly indicate the person responsible for the passenger's life. Auto racing participates with vehicles under little Qali to win certain routes in tendri, winning if superior to the opponent. The main income of auto insurance is the daily payment received from drivers, and the expenses are the head of

the association and the working fee for hodms, expenses for the Y'ol sheet, social deductions, tax payments and deductions.

Tendr competitions are held in Sahar and districts to serve destinations on their territory. Tendr is the opening of objections or new routes from passengers on the route, which are the basis for holding a competition. To conduct this competition, an announcement is made in the media a month before its transfer. Applications of participants in the tender are accepted by the Coordination Center. The expert group conducting the tender is organized, which includes: tax, Motor Transport Agency, yxh Regional Department, Ministry, members are charged. On the day of the tender, all received documents are submitted to the Working Group by name and held with the participation of the media. These works will be evaluated by the working team in a 100-point system with the study of the goodness of Transportation under the hands of the participants, the prices of transportation they offer, the material base of the participant, and the objections that fall on them, thus determining the winner, will be announced before the majority. The responsibilities and rights of the winner of the Tendr are such that only the winner works in the direction won in the Tendr. Activities of other carriers are subject to consideration.

In order to develop auto racing, it is necessary to better study the saroit of the khaydovchs who are members of it, to increase their number, the passenger flow consists in winning high routes in the Tendr, increasing the number of carriers. It is necessary to provide a collar and provide an extension, answer them during the examination of the objection, find a tenant if necessary, protect them in front of the necessary organizations, receive a daily payment by a car dealership on time, transfer the goods to the necessary authorities in time, carry out cleaning of the routes from illegal carriers. The problems encountered in auto-driving activities consist of the following: late stay of drivers to work, not giving graphs to each driver, not keeping the speed of vehicles in one norm, as a result, the income is lost due to the accumulation of cars on one side, the departure of passengers to other vehicles.

2.2. General classification of the composition of maintenance personnel, landing

In general, an employee (personnel) is understood as specialists in various fields of Science and technology, including skilled workers, whose work they are doing requires special professional training. Skilled workers are young people who usually graduate from secondary specialized educational institutions, Hunar-technical educational institutions, special colleges.

Management personnel is understood as employees whose professional activities are fully related to the performance of the task of production management.

The following two concepts with the concept of management personnel:

- employee policy and employee engagement;
- personnel policy-this is understood as the direction of development of highly qualified management personnel with the necessary quality of work knowledge, profession and personality, designed for a long period. The purpose of personnel policy consists in the production of a long-term program of training and retraining of employees at the enterprise, firm.

The tactic of the work of employees is said to be a job with employees. This means the correct selection of personnel, placement in place, training, training, use and retraining of management personnel.

An important aspect of personnel work is to evaluate the performance of management personnel.

TYPES OF ASSESSMENT:

. Complex assessment of personality activity:

a. General Social: the passion to work, the intensity of work, the good of his work knowledge, discipline at work.

b. Personality qualities: memory, fachm-savvy, adherence to the norms of ethics.

v. profession qualities: general imaginative, conceptual thinking, developed intelligibility, entrepreneurship, workability, professional competence.

2. Local assessment-is carried out on the basis of the results of the performance of one task or part of it. For example, one of the director's activities is to consider the complaints and suggestions of workers: the performance of this task can be estimated by the following dimensions:

- complaint building fan;

- response to complaints (positive or rejection);

- appeal of workers to higher organizations after refusal;

3. Extended assessment study of the long-term activities of the chief specialist.

4. Expressive assessment analyzes the quality and how it works, which is manifested in the present period.

A special type of employee assessment is employee certification:

Attestation includes the following measurement methods:

- the work of the attestation passer-by;

- the quality of his work in the past period;

- attitude to work;

- compliance with labor discipline;

- the percentage of the employee's contribution to the result of the team's activities. Content model of the quality of a person.

1. General Social adjectives

1. Professional qualities

1. Spiritual qualities	1. Spiritual volitional
1.layout	1. activity
2.humanity	2. systematic thinking
3.sylopic	3. development of feeling
4.demand	4. persistence
5.justice	

2. Socio-spiritual	2. Professional knowledge
1. collective awareness	a. managerial knowledge system, practical experience
2. reasoning	b. special knowledge network system
3. Courage	
4. ability to manage oneself	
5. concern for people	

3. Natural-genetic qualities	1. Organizational quality
------------------------------	---------------------------

Health	Business
Physical strength	Mobility
Excitement	Entrepreneurship
1. Pedagogical by fields knowledge of: a. general and production pedagogy b. general and social psychology c. general and pedagogical ethics.	2. Pedagogical knowledge and opportunities

Pedagogical qualities

The professional qualities of the leading employees determine the professional right of the leading specialist with their essence.

At the bus station and the main station, it consists mainly of selling tickets to passengers on the routes, transferring passengers to the moving train and ensuring the safety of passengers in this process. At Avtoshok, the persons responsible for the identity process at the main station, the deputy head of the main station assigned to the shift is the general responsible for the entire situation. The supervisor on duty is responsible for the state of the routes, and the treasurer is responsible for ticket sales. From each branch and main station, inter-city, inter-city, inter-state, intra-regional routes of more than 50 km are served. It is served by buses with hard and soft seats, taxis on the route, and light taxis. The document of each route is developed by the enterprise operation department, this document is approved by DAN, distributed to the necessary places (in the enterprise, at branch and main stations, in special control rooms).

The travel document includes: route passport; route scheme, route report, route schedule, route tariffication, etc.

Employees have rights and obligations based on the guidelines developed specifically for their activities. The shift supervisor mainly organizes daily passenger dispatches with subordinates. Connecting bus stations and bus stations requires the treasurer on duty to organize the sale of tickets for them. Schedules are organized on the basis of contracts with bus companies of parity. Attaching taxis on the route to the schedules organizes the rental fees for the space. It provides carts to porters and requires them to submit daily income and daily payments. Investigates complaints received from passengers and drivers and takes appropriate measures. When moving each bus from the station, it is checked by the passenger based on the existing instructions, then the inspector in front of the bus station checks the passengers and sells them tickets. constitutes prevention work. At the end of the work, the bus driver and the buses arriving at the main station will return the fee from the daily treasury, or transfer it to the account number. Investigates suspicious passengers, reports identified criminals to the police station. Supervises the activities of all workers and employees, responds to cleanliness in accordance with the rules of sanitation and hygiene at the headquarters.

Avtoshokh checks the technical condition of every bus coming to the main station and does not allow defective vehicles to operate. It organizes the medical examination

of drivers. Before each flight, he checks the technical condition of the vehicles in motion, sends the defective ones to the car factory, and eliminates minor faults.

It organizes overnight stays for drivers coming from long distances. Passenger cars traveling from the region pay for a place at the station. These fees will be revised as the price changes. Income from the sale of tickets from autoshox and all vehicles arriving at the main station, from rental fees

the proceeds will be collected. Passengers are insured at bus stops and main stations, the insurance amount is added to the ticket and sold. The flow of passengers arriving at the bus stop and the main station will be studied, and a measure will be taken to provide it with a means of transportation. A room for mothers and children will be transported at the headquarters. Preferential passengers are given conditions when selling tickets.

5.3. Basic requirements for specialists and enterprises with them provided.

The issue of planning and ensuring the execution of the balance clock in motor transport is urgent. The approach to this issue is formed as follows, depending on the characteristics of the car's operation on the line, and the attachment of drivers to it, depending on the type of transport.

2.2 hai/car in the city for buses; 1.6 hai/car in the city for trucks; 1.8 hai/car for passenger cars; This is an approximate indicator, more precisely, the volume of machine hours (TNM) is formed depending on the hours of operation of the car during the day.

$$TNM = Tsm * Ksm \text{ (m* clock)}$$

In this case, Tsm is the working duration of the active content in the shift, m*h Ksm is the shift coefficient of the active content 1-3;

The hours of operation of the content in this movement in a certain period S TNM is found as follows:

$$S \text{ TNM} = Asl * Tsm1 * Ksm1 * Dil + Asl * Tsm1 * Ksm1 * Dil + \dots + Asp * Tsm p * Ksm p * Dip; \text{ (m*soat)}$$

The number of drivers required for one-way trains is determined by the following formula:

$$Na = TNM : BX \text{ (xay);}$$

In this case, the balance hours of BX-drivers in one month are 169.2 hours

The total number of active drivers in the car company is found as follows:

$$XN a = Asl * N a1 + N a As2 * N a2 + \dots + As2 * Na2$$

The total number of registered drivers in the car company is found as follows:

$$S Nr = (S N a * 0,053 + S N a * 0,053) + S Na$$

In this case, S N a * 0.053 is the number of sick drivers;

S N a* 0.083- where the number of drivers on work leave and the number of engineering technicians are found as follows:

$$XMTX = XNr * (0,03 - 0,12)$$

The number of junior management staff is found as follows:

$$XK BX = XNr * (0,04 - 0,13)$$

The more the number of engineers and technical staff and junior management staff increases, the economic indicators of the automobile enterprise may decrease and enter into losses. By adapting these standards and processes, the following standards have been developed.

The structure of the production process management apparatus at the enterprise of TCC for automobiles.

Category of employees	With the workplaces of the TXK enterprise for cars						
	51 and more	36-50	20-35	16-20	11-15	6-10	6- less than
1. Head of the department working with clients (manager)							
2. Part working with clients;							
Department head (manager)							
Great master							
Engineer-technologist							
Production preparation master							
Cinematographer							
Treasurer of Crimea							
3. Production dispatch department.							
Head of department							
Senior dispatcher							
4. Head of the department							
Part head							
Great master							
Master							
foreman (supervisor)							

Engineer-technologist (master-receiver) is a person responsible for working with customers. He is responsible for the fact that the vehicle is not accepted for technical service and repair, and the car is not handed over to the production (if there is no TNB

for the car at the TXK enterprise), and the car is not given to the customer. If there is no TNB in the TNK enterprise for cars, he is responsible for not giving the car to the customer. If there is no TNB for cars in the company of TSC, the engineer-technologist organizes the delivery of the car to the customer. Production department employees who deal with customer activities, advertising, customer interaction, pre-booking, vehicle pickup, production department staffing, customer service in the lobby they are responsible for the organization of the state of affairs and its organization, storage rooms, rooms for foreign customers who come to the TXK enterprise for cars, auxiliary places for storage and delivery of finished cars. An important element of the production process management system is the rational organization of works in the TXK and JT parts, body and painting works, and the work of the repair department in the short term in the production process management system. If the planned tasks among these elements are communicated to each of them and their executors in an appropriate manner, if the deadline for the completion of certain tasks is determined, and if these tasks are provided with the material and technical means (resources) in the plan, then the tasks of rapid planning will be fulfilled.

Review questions.

1. Associations of modern auto transport enterprises, cooperative societies classify?
2. Ministries; state committees, concerns, corporations, consortia classify?
3. Companies; enterprises; classify firm etc.?
4. How is the performance of management staff evaluated?
5. What is included in the element of modernity of the enterprise?
6. What does the attestation include?
7. What rights and obligations do employees have at the bus station and the main station?
8. How is the management of the employees of the auto branch and main station organized?
9. What is the purpose of organizing a car association?
10. How are the basic requirements for MTX, KBX drivers defined?
11. How is management implemented in society?
12. What tools and employees will be included in the auto association?
13. How to organize participation in the auto union tender competition?
14. How to develop an auto association?

6-Lecture: Decision-making methods and classification in production management.

Study plan:

6. 1. Decision-making process, methods and classification.
- 6.2. Integration of experts' opinion in decision-making.
- 6.3. A priori annoying style

6. 1. Decision-making process, methods and classification.

The decision-making process means choosing one of the possible options. It consists of the following steps.

1. Understand the need to make management decisions in the system →
2. Is there a problem? →
3. Appointment of a person responsible for decision-making →
4. Gather information about limitations, external factors, system status →
5. Determining the purpose of the system (subsystem). →
6. Comparing the system's previous goals and results, assessing its status →
7. Defining the problem →
8. Is the problem that serious? →
9. Is professional help necessary? →
10. Recruit outside consultants or create a working group →
11. Goal tree. Setting specific and general tasks and placing them by level →
12. System tree. Development of decision options →
13. Evaluating alternatives under uncertainty, risk, and certainty →
14. Do the decisions satisfy the set goals? →
15. Development of a plan for the implementation of the decision →
17. Implementation of the approved decision and plan →
18. Control of the implementation of the decision →
19. Was the goal achieved? →
20. That's it.

Decisions are standard and non-standard, depending on the situation. Standard decisions are made in many reversible manufacturing situations. They are contained in laws, standards, regulations, norms and other valid documents: their adoption uses the experience of other experts and organizations. For example, about maintenance and repair, regulations, factory recommendations, etc.).

60-65% of all decisions in the engineering service are made according to the rules. Making standard decisions is a sign of the high competence of the engineer-management employee. In the context of the concept of "action research", decisions that require additional work time for information collection, analysis, and calculation are called non-standard decisions.

In general, the performance indicator, or objective function, is divided into three groups of factors:

$MK=U=U(a_1, a_2, a_3, a_n,; x_1, x_2, x_z, x_m,; z_1, z_2, z_3, z_k,;)$ the first group of factors ($a_1, a_2, a_3, a_n,;$) perform the operation defines the conditions and they are given and cannot be changed during execution. For a particular ATK, the climatic conditions of the district where this enterprise is located and which affects the reliability of the palace; road conditions, etc., affecting the reliability and productivity of cars in the serviced area. The second group of factors ($x_1, x_2, x_z, x_m,;$) can change in control while affecting the objective function. These control factors are selected from the ATE tree system. This group of factors includes: TXK modes, TXK and JT quality, staff qualifications, level of mechanization, etc.

The third group of factors ($z_1, z_2, z_3, z_k,;$) are insufficiently studied, unknown conditions: weather conditions; the number of employees, employment of posts, requirements for repairs; psychophysiological condition of drivers, etc.

The first and third groups of factors are conditionally combined with the concepts of nature and production. It represents all external conditions for the system that affect the results of programs, activities, actions.

In the conditions of certainty, the state of nature is known, that is, there are no factors of the third group, or they can become the first group and be accepted as constant. When all three groups of factors are acting together, the decision should ensure obtaining the extreme value of all objective functions. If it is possible to estimate or determine the probability of occurrence of this or that state of "nature" (factors of the third group), then the decision is made under risk conditions. If the probability of the state of "nature" is unknown, then the issue is accepted under conditions of uncertainty.

The decision-making apparatus can vary from an algorithmic approach to a naturalistic experiment. Usually, engineering, management, and other decisions are made without complete information about the state of the system, external conditions, and the consequences of the decisions being made. For example, when deciding on the number of posts at technical service stations, one can only guess about the nature of the requirements in terms of the potential number of customers, months of the year, days of the week, hours of the day, etc., the content and distribution of the requirements.

During the "Tomorrow Day" there is a certain type of car repair, the number of possible requests, whether a certain specialist or worker may or may not be available for work, etc. a similar situation arises. Seriously speaking, full information can be obtained after this or that event. This happens when there is no need to prevent things and make decisions, and the system is like a reactive control system. Therefore, it is necessary to fill the lack of information in management. There are the following methods for this: collecting additional information and analyzing it; use of similar decisions or experience of enterprises; use expertise or collective opinion of experts; application of instrumental methods or criteria based on game theory; Using realistic, simulation modeling and other methods that recreate the production situation.

6.2. Integration of experts' opinion in decision-making.

The logical-classification (ranking) method based on expert assessment of factors by a group of specialists with deep knowledge in the researched field is the simplest.

A logical (a priori) method of classification consists of the following:

1. Determines the preliminary list of factors that require classification based on the conditions of the organization or specialist who conducted the examination, the conditions of the orderers, the analysis of the data in the literature, the generalization of the experiences, the survey of experts, the analysis of the tree system, which ensures the selection with a certain reserve. .

2. The questionnaire is prepared, the necessary explanations and instructions are given in it, the list of factors is given in the form of a table, examples of filling out the questionnaire are given.

3. A group of experts will be formed, the authority of its members will be checked. They should be experts in the issues under consideration, but should not be personally interested in the results of the examination.

4. After the formation of the group, oral and written instruction of experts will be held.

5. Experts evaluate the presented factors. In this process, the factors are placed in the order of decreasing degree of influence on the object of research or the final sign, which is a symbol of the target function.

6. Processing of the results of expert inquiries is carried out by expert organizations.

If the expert opinions are negative, they analyze the reasons for the negative result. The reasons may be as follows: uncertainty of the issue or instruction, incorrect selection of factors, selection of experts who do not have deep knowledge, possibility of collusion among them, etc. Depending on the results of this analysis, the expertise will be transferred to other group of specialists; about changing the instruction; a decision is made to adjust the composition of factors.

Advantages of logical classification: speed of obtaining results and relative simplicity of event organization. Disadvantages - the selection of experts depends on the results of the quality of expertise, that is, the presence of certain subjectivity. In addition, experts use their previous experience gained in other conditions when evaluating one or another factor of this system. Choosing the factors for this system and setting the issue correctly is important and has a serious impact on the results of the examination.

6.3. A priori annoying method

One of the most important tasks of all categories of workers, especially engineers, is decision-making. In conditions of insufficient information, i.e., in decision-making in conditions suitable for production, the methods of gathering (integrating) the opinions of highly qualified specialists - expert evaluation are widely used. The method of expert evaluation is divided into two main groups: the work of the expert group as a team; get and sum up the assessment of each expert member. The first group includes:

1. Consultation, i.e. the method of holding an open dialogue and accepting a solution (commission method);
2. The method of "Brainstorming" is aimed at finding possible ways to solve the specific task that is set before the participants in this process;
3. "Court" style, this style is similar to the rule of conducting court proceedings, the issue under consideration participates as a "defendant", and the expert group plays the role of accuser and acquittal.

In the second method, obtaining and summarizing the opinion of each expert member is divided into two groups:

- conducting an interview in the form of a free conversation or a question-and-answer type;
- surveying, in this process, each expert gives a quantitative assessment to comparative factors, that is, ranks them.

4. A priori alignment, concordance coefficient.

PRIOR RANKING. This is a very simple method, based on an expert evaluation of factors by a group of experts. It is done in the following order:

1. By the enterprise or specialist conducting the expertise as a result of data analysis in the literature and generalization of existing experiences a list of factors (factors) requiring classification is drawn up.
2. A questionnaire will be drawn up, in which, as far as possible, the list of factors in the form of a table and explanations and instructions for filling out the questionnaire are provided.
3. Creation of a group of experts and their consideration of the issue specialty is checked. Interests of experts in the issue under consideration should not be seen. The verification of the competence of experts' specialty is carried out by self-assessment using tests or by evaluating standard factors.
4. Verbal or written instructions are given to the group of experts.

5. Factors suggested by experts are evaluated personally. In this process, they determine the level of the objective function that corresponds to the outcome measures that solve the problem.

In this case, the factor that can have the most impact is evaluated with 1 color. The less influential factor is given 2 colors (number 2) and x.z.

6. The results of the expert survey are processed and performed as follows;

- survey results to the a priori ranking table for all experts is entered. (Table 1)

- the sum of the colors of each factor is determined, m: "ICHTB 2+1+2+1+1+1+2+1=11 according to the "provided" factor

- the difference of the color of each factor from the average sum of colors is determined.

$\Delta = 11 - 80/4 = -9$ Using the concordance coefficient, the level of agreement of experts' opinions W is evaluated.

Results of ATKICHTB a priori ranking that corrects the coefficient of technical preparation.

1 – table

Factors	Experts (conditional numbers)								Color sum by factor	Changes in the sum of colors, Δ	Δ_2
	1	2	3	4	5	6	7	8			
Availability of ICHTB-X1	2	1	2	1	1	1	2	1	11	-9	81
ATK power (measurement-Ai) -X2	3	4	4	2	3	2	4	4	26	6	36
Park different brands-x3	4	3	3	4	4	4	3	2	27	7	49
The level of mechanization of TXvaJT ICH process-X4	1	2	1	3	2	3	1	3	16	-4	16
Total									80		182

Coef. With the help of concordance W, the level of compatibility of experts' opinions is determined.

$$W = 12 S / (m_2 (k_3 - k))$$

$$S = \sum_{i=1}^k \Delta_2^2$$

k - number of factors;

m is the number of experts.

- The concordance coefficient changes from 0 to 1. If it is from 0

if there is a significant difference, it shows the agreement of the experts' opinion;

- According to the Pearson criterion (k-1) expert disagreement is evaluated;

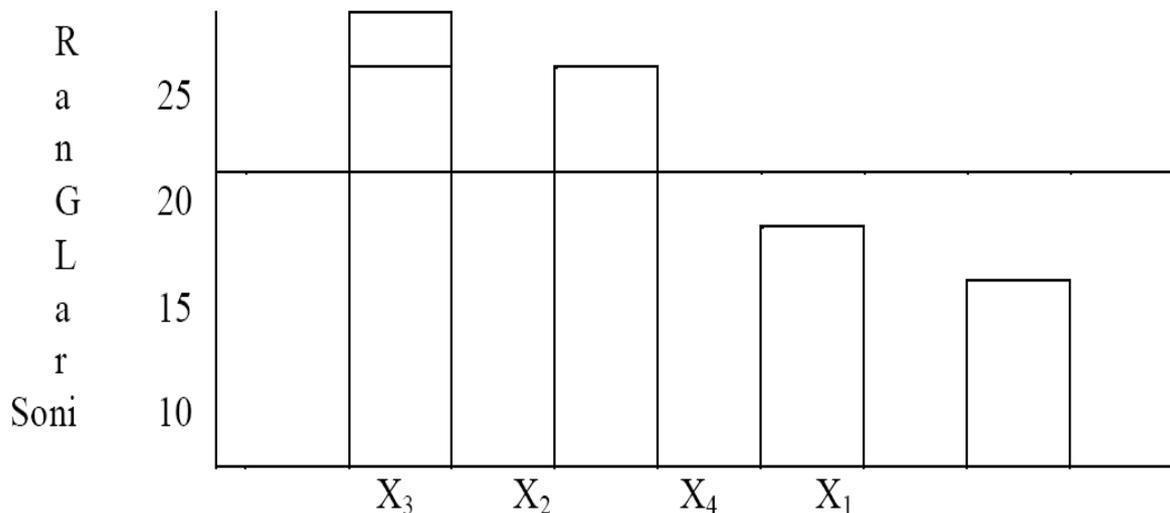
- An a priori diagram is created. It is a decreasing diagram of factors shows the distribution of the sum of colors according to

One of the ways to distinguish the main factors is to compare the colors of this factor with the average of all factors.

As can be seen from the table, a group of experts determined the effect of ICHTB on Ft. Availability of ICHTB (1st place color sum - 11); the level of mechanization (2nd

place in the sum of colors - 16); ATK power (sum of 3rd place colors - 26); different brands (4th place in the sum of colors - 27).

The concordance coefficient $W=0.57$ shows that the experts' opinions are very close to each other, Pearson's criterion $HHz2q13.65$ - shows the consistency and non-approximation of the concordance coefficient on the compatibility of the experts' opinions.



Factors a priori diagram of colors, the advantages of a priori coloring are the simplicity of the method, the lack of work; Disadvantages of universality and quickness (operativnosf): some subjectivity; involvement of experts in the final assessment and others.

Review questions.

1. What are the steps in the decision-making process?
2. How are standard and non-standard decisions made?
3. What group of factors is the management efficiency indicator divided into?
4. What is the logical (a priori) method of classification?
5. What are the advantages and disadvantages of logical classification?
6. What is the content of the Apriori ranking method?
7. What is a priori annoyance?
8. What is the disadvantage of a priori ranking?

7- Lecture: Organization of service in service enterprises

Study plan:

- 7.1. Organization of service in service enterprises.
- 7.2. Differentiating aspects of service enterprises.
- 7.3. Aspects of receiving orders, car showrooms, preparation, placing orders.

7.1. Organization of service in service enterprises.

The following documents are used for the enterprise that provides technical service for passenger cars:

- security requirements for technical condition, inspection methods;

- a method of measuring the rate of toxic gases emitted from carburettor cars security requirements;
- pre-sale preparation of cars;
- standard technical, organizational and technological standards for automobiles at the TXK enterprise documents are mandatory for a car service enterprise.

The owner of the car places an order for the car at the TXK company in advance by phone. To cars to the car at the TXK branch registration of the order, consideration of its fulfillment, registration of delivery is carried out through the relevant document. Orders to perform TXK and JT for cars are issued by the car owner in writing.

The customer's order is accepted by the TXK enterprise.

The list of work on TXK and JT, the necessary spare parts and the deadline for the order are in the order is also displayed. A deed of acceptance and transfer shall be drawn up.

The following materials will be posted at the place where orders are accepted:

- rules of services provided to cars at TXK branch office;
- working order of the branch office and order desk for cars;
- list of works and services to be performed;
- warranty obligation of the car manufacturing plant;
- a sample of forms for filling out documents when issuing an order;
- address and telephone number of the enterprise;
- quick information on receiving orders;

Automatic information management of all the above works and processes is desirable.

Quality and efficient operation of the spare parts supply system is represented by a number of indicators:

- volume of missing spare parts;
- the amount of supply from the request of orders;
- quick and scheduled fulfillment of orders;
- the comparative cost of spare parts in reserve corresponding to the service unit.

"Subscription" service is the most advanced form of service for cars at TCC enterprises. In this case, a contract will be concluded between the car maintenance company and the car owner for the service for a period of 1 year according to the fixed price of the vehicle in motion. Documents used to organize and record work in the enterprise are divided into primary and consolidated groups.

Primary documents are created during the improvement of business operations, for example, when the customer hands over the car to the company TXK, when receiving spare parts, and the like. We will consider the form of documents recommended for managing the production process, and the order of their filling. The application is the basis for the transfer of TXK and JT to receive an order. And it is in the master-receiver and the master who prepares the production. The application is filled out by the recipient and the customer in three copies, one is added to the production order and then sent to accounting. The order-order is a fixed report form, it is kept by the illustrator (master receiver), it is printed in four copies on a typewriter, using a copier (paper). (Table 7.1).

An order is a procedure for filling a queue.

Operation	Who will fill it	Side of the figure	Details to be filled
Filling out the order process when receiving cars	Painter (master reception doer work release preparation) master	Face side (yu)	I. sh, o. i, address and phone number (of the customer), data of the car owner; props of the car; make, model, numbers of the body, engine, date of registration, date of completion of the plan, village, city; payment code. If the customer brought spare parts and materials, then the corresponding graphs; Continued numbers and signatures in the "Order will be issued" column.
	Customer	Yu, O (O-back side)	
	Treasurer	Yu, O	
	The master is the receiver Yu,0	Yu, O	Signature in the column "I agree with the size and initial price of the order, I have familiarized
	Production master	Yu, O	Initial price of the order; the amount of money received during the registration of the order according to the receipt; signature of the
To manufacture a car			Signature in the "Received from the customer" column
To issue a receiving order.	Executive (Brigadier)	Yu, O	Customer's l,sh,0. i. in the appropriate graph; "Days" in the column for starting and ending work in the plan.
Acquisition of spare parts and materials	Production master, warehouse manager.	Yu, O Yu, O	Signature in the column "Accepted for production".
Completing the work, calculating the salary	Executive (Brigadier)	Yu, O Yu, O O Yu, O	
Delivery of the car to the owner, final settlement and registration	Production master. Labor engineer	Yu, O Yu, O	Signature (1st copy) in the "Received" column Signature (2nd copy) in the "Sent" column indicating the name.

The continuation (back) of the order is used if there is not enough space to list the works and material values in the order or if additional work has to be performed. The order-receipt is drawn up on an order-by-order basis, and it is at the disposal of the receiver-master, it is filled in three copies, the 1st remains in the treasury, the 2nd is sent to production, and the 3rd is given to the customer. The order accounting window

is used to account for vehicles received at TXK and JT. Orders are received in the window according to the number of increments and continued to it. Order-receipts are registered in a separate window and are in the imager (master-receiver). Orders are recorded in one copy in the accounting window. It will be numbered, stamped and signed by the head of the company that manufactures cars. The receipt-handover document is at the discretion of the receiving master and the master of production preparation. It is filled in two copies, 1 is attached to the order, and 2 is with the customer. Daily and monthly work plans for the parts of the automobile repair and maintenance enterprise, a schedule for repairing and restoring cars are prepared based on orders and acceptance-handover documents, and relevant entries are made in the order log. The quick report of the enterprise TXK for automobiles is filled out by the dispatcher of the enterprise TXK for automobiles based on the reports and requirements of the foremen of parts and production units. If necessary, a certificate of unfinished production will be drawn up. The document is filled in three copies by the court, the 1st is sent to the accounting department, the 2nd to the production master, and the 3rd to the department of planning economy; serves as a basis for determining the volume of work performed according to the order.

7.2. Differentiating aspects of service enterprises

Service enterprises differ in terms of their service capacity, number of posts, modern technical equipment, length of service warranty period, low cost of service, number of employees, types of ownership.

Service capacity refers to the number of posts that service cars at the same time. An increase in the service capacity leads to a decrease in the service fee and the specialization of the service.

One of the main factors of service specialization is the implementation of malfunctions without replacing them with a new spare part. In order to reduce the cost of repair, it is possible to reduce the cost of the damaged part by self-recovery.

One of the ways to improve the quality of service is to determine the warranty period for the production of rolling units depending on the demand. Depending on the customer's ability to pay, various types of repairs can be carried out. Most often, the use of the rotating aggregate method is useful in the repair of enterprise and organization vehicles. The fact that the repair of private passenger cars is quick and cheap in the short term leads to an increase in the number of customers. Every private car owner compares these listed indicators to make a conclusion in order to become a member of a car service. Thus, the following indicators can be given to the differentiating aspects of service enterprises:

- Low level of repair service fee;
- Use of rotating aggregates in repairs;
- Replacement of spare parts during repair and length of service life;
- Speed of the repair process;
- Receiving repairs by phone;
- Location of the car service in a convenient place;

7.3. Acceptance of orders, preparation of car showrooms, orders placement aspects.

Fast implementation of orders allows you to be satisfied with the customer's choice. When accepting orders, fast service is provided to customers of the car service based on the contract. Orders: by phone upon first request; according to the contractual client; is accepted for clients who are stuck on the road. When receiving the first request by phone, all the details of the client are accepted in full as far as possible:

- car owner's last name, first name;
- the estimated route of the car brand during the reference period;
- the distance of the car from the car service and the type of damage it is estimated to have;
- the time, date, and form of payment for the service (by money transfer, plastic, cash);
- the need for repairs, when to be ready;

In the preparation of car showrooms, a place should be allocated for each brand, making it convenient to move around in the salon. The car showroom should allow you to see the car from all sides, the salon should be clean and comfortable, the color of the car should be the color desired by the region, and the cars should be inspected every morning and at the end of the shift, and the alarm should be set. Brief technical classification, price, sales procedure and other information of each car will be written in front of the car, which will save you from unnecessary inquiries.

Aspects of placing orders - after receiving the orders, they are distributed to the executors according to the procedure and the customer's request. Each performed repair service is inspected, if the customer comes, it is handed over, otherwise, if the customer does not come, the repaired car is put in the storage place for ready-made cars. The order for each car is written in 3 copies, and at the end, the amount of work done is determined by comparison with each other and the fee is charged. According to the letter of preparation and delivery of the last order, the executor is calculated in accounting and paid to him. This document will be stored within 2 weeks and then submitted to the archive.

Review questions.

1. How are TXK and JT organized in service enterprises?
2. What materials are hung in the place where orders are accepted?
3. How will the order be filled?
4. What is the acceptance-handover deed needed for?
5. What do you mean by service capacity?
6. Name one of the main factors of service specialization?
7. What indicators are included in the differentiating aspects of service enterprises?
8. How to accept orders?
9. How are car showrooms prepared?
10. How are aspects of placing orders handled?

8-Lecture: Service certification in service enterprises

Study plan:

- 8.1. Product and service certification.
- 8.2. Certification scheme and terms, mandatory certified services and product names.
- 8.3. The procedure for certification of services, the role of testing laboratories in the certification of services and products.

8.1. Product and service certification.

One of the important elements of product quality management system is standardization. Standardization is normative creative activity, finding more effective norms, and then attaching them to normative documents in the form of standards, guidelines, methodological requirements for product performance.

The main task of standardization is to create a system of normative and technical documents, progressive requirements for products, prepared for the national economy, protection of the population, the country, export, as well as the correct use of these documents. Current standardization allows for the development and maintenance of:

- a single technical language;
 - unification of the important technical conditions of the product (peak and drop, voltage, frequency, etc.);
 - series of type sizes and standard design of the product generally used in machine building;
 - systematic classifier of technical and economic data;
 - reliably verified request data for materials and substances;
- Standardization is based on a number of principles:

reversibility - identifies objects that use the same substance, processes, relations, have a common content - return in time, or circle in space;

variant - creation of an effective multiple view of standard elements - creation of an effective minimum variety of views included in the object of standardization of standard elements;

systematicity - defines the standard as an element and the organization of the standard system, the specific internal content of the object of standardization;

interchangeability - replacement of details of the same type at different points of the space and at different times according to the application of the technique. Depending on the object of standardization, standards are divided into the following types:

- content-based standards;
- product and service standards;
- process standards;
- standards for control method, testing, measurement, analysis;

Product and service certification allows you to verify that the product meets standard requirements at the time of sale. Certification (product) determines that the service has passed the test, the required number of objectives. The concept of product and service certification was developed by a special committee on product certification. by the International Organization for Product Certification (ISO): *Certificate of Conformity* - third-party influence, proving that the identified product, process or service conforms to a specific standard or other normative document.

Certification is based on testing and assessment of production conditions of the certified product, execution of these procedures and product quality control by an independent impartial body. allows you to define the product classification. Therefore, certification is not only a reliable term, but also a proven source of compliance of a solid product and service with the specified requirement, and a reliable such compliance, but also an effective means of improving product quality.

8.2. Certification scheme and terms, mandatory certified services and item names.

The certification scheme has its own characteristics in motor transport and consists of the conditions and terms of the work performed by the participants who participate in the repair process of certain nodes and aggregates. In this case, mandatory certification services for parts related to traffic safety are performed. In this case, mandatory certification is required: ml administration; includes brake systems, lighting elements and their parts. During the creation of the certification scheme, the duration of the certification scheme is determined sequentially according to the entire assembly process. The purpose of creating a scheme is that in the sequence of the repair process, all process elements are certified, the process cannot be reversed. Separately for the elements of the process to be adjusted in certification executors and quality indicators and deadlines for its performance are determined and received from responsible persons. All elements to be executed are tested, error limits are set for their assembly operations, after completion of the work, they are checked and controlled according to the requirements, and are confirmed with their seal for compliance with the requirements.

8.3 The procedure for certification of services, the role of testing laboratories in the certification of services and products

The service certification procedure consists in the fact that it is organized on the basis of the procedure for assembly and disassembly of units and aggregates, and their error limits are determined. The completed work is tested in laboratory conditions and the service life is determined. The specified indicators are defined as criteria for the participants of the element, they are trained and certified based on this requirement. The role of laboratories in the implementation of these works is incomparable. An artificial operational process is carried out in the laboratories, and indicators of failure of the parts are determined. In order to give a legal status to these cases, indicators are developed as a normative document for the state standard organizations and an enterprise certificate is obtained. After receiving the certificate, the auto service company organizes these activities in its daily activities. Their activities are controlled by the State Security Council.

Review questions.

1. What is standardization in service enterprises?
2. What is the main task of standardization?
3. What are the principles of standardization?
4. What is the meaning of reversibility and option principle?
5. What is the content of the principle of systematicity and reciprocity?

6. What are the types of standards?
7. What is a certificate of conformity?
8. How is the certification scheme in road transport structured?
9. What is the service certification procedure?
10. What is the role of testing laboratories in certification?

9-Lecture: Providing technical systems with information and maintaining documents and documents used in their management.

Study plan:

- 9.1. Methods of collecting types of information.
- 9.2. Sources of information collection and requirements for them.
- 9.3. Types of documents used in the technical service of ATKs and their formalization procedure.

9.1. Methods of collecting types of information.

Management processes in ATK go through cycles and have a relatively closed nature. The control cycle begins with the collection of information about the status of the controlled object (ATK, workshop, section, etc.), and then this information is used to make a decision.

are analyzed for acceptance, finally, these decisions are communicated to the executors. Information about the state of the object is based on Sunday management. Sources from which this information can be obtained:

- existing accounting system in the enterprise;
- regulatory and reference documents;
- selective observations and inquiries from employees;
- summarizing and organizing experiences.

Accounting for production consists of recording technical, economic and other indicators of enterprise activity (for example, actual consumption of fuel, planned and actual periodicity of fuel consumption, distance traveled between breakdowns, etc.). Information about the operations performed on production and economic activity is recorded in the primary paper or electronic carriers in kind, value or other form.

Management objects and technological operations can be coded in order to simplify data processing and computerization.

ATK consists of a complex of production units and services, each of which solves certain issues. All departments can be divided into two parts: those who perform tasks on the territory of the enterprise and those who perform tasks outside the territory. The activities of departments and employees are recorded in various documents (tables, departure orders, road repair sheets, requests for spare parts, etc.). The results of the enterprise's activities are formalized in various reports and data forms. Thus, ATK units serve as sources of information, and their employees perform certain types of work.

The activities of units and employees are recorded in various documents (road log, repair log, fuel supply document, application for spare parts, etc.). Currently, there are no uniform requirements for the content and form of documents, but they can be divided into three types (depending on the type of information stored): normative, primary and secondary.

Written information, documents that do not change within a certain period of time are called normative (periodicity of fuel consumption standards, warehouse numbers of details, etc.). Documents that record information about current production activities are called primary (waybills, application for repair, application for obtaining spare parts, etc.)

They may also contain information from normative and statistical documents. In secondary documents, the results of selecting from primary documents and dividing them into groups (information about the consumption of spare parts, the award document for saving fuel, information about the time of cars under repair, etc.), normative and standard references and other information are written.

The document, as an information carrier, passes through a number of departments of the enterprise, and each of them adds certain information to the document or uses it. The set of documents, together with their passageways, means the circulation of documents or the flow of information in the enterprise. This flow is unique for each enterprise. Nevertheless, the flow of documents how suitable it is for the purpose can be assessed by the following indicators (all other conditions being the same):

- volume of processed information (at the level of document, issue, division, ATK);
- the ratio of the volume of normative and reference, primary and secondary information;
- the level of repetition of information (at the level of document, issue, division, ATK);
- the difficulty of data processing, etc.

If there is no computer technology in ATK, documents are processed manually. As a result of the application of information technologies, the circulation of documents changes somewhat, because the database of information on the computer is used. It stores all normative and reference information (MMA), data from primary documents, and creates secondary documents automatically.

Changes in the circulation of documents and the level of excellence of the information technologies used can be assessed using the following indicators:

- the amount of information processed by employees manually;
- the volume of MMA stored in the database of the information system (MB) - the volume of current information entered in MB through the keyboard in a certain period of time;
- the amount of information transmitted through the communication channels of the information system; In practice, any document consists of two parts - description and information. The statement part describes the document itself (name, number, date, etc.). the information part consists of the same sequence of records.

The amount of information in the document:

$$W_{xuj} = W_b - W_a,$$

Here, W_b is the volume of the statement; approx

W_a - size of information part; approx

Instead, the size of the statement:

$$W_o = \sum W_i$$

Here, W_i - is the volume of information in the i -place in the statement part of the document

The number of i -places in the n -statement part.

The size of the information section:

$$W_u = N_z S W_j$$

Here N_z is the number of entries in the information section; W_j - the volume of information in the j -place of the information section; number of m -places.

With the help of the above formulas, it is possible to determine the amount of disks for storing documents on magnetic media, to determine the load of the local network, to choose the technical means in the design of the information system and the type of the database management system (MBBT).

9.2. Sources of information collection and requirements for them

Technical service employees solve a complex of interconnected issues. The results of the employees' work are recorded in certain documents. At the level of information, all departments of the enterprise interact with each other.

The document circulation of technical service of ATK consists of more than 120 documents. Of this, 21% are primary results (technical passports, road sheets, repair sheets, applications for spare parts, etc.), the share of MMA documents is 6% (routes, fuel consumption standards, resource of tires, periodicity and difficulty of TXKs, etc.).

The share of secondary documents is 73%. These are various reports (references, summaries, documents, files, journals, etc.).

The amount of information processed during the office at ATK is approximately 50 kb per vehicle.

In this volume, the share of MMA is 3%, more than half of the volume of processed information is 55% in primary documents, about 42% in secondary documents.

Several departments deal with primary documents. For example, a request for spare parts goes through the following paths: motorcade-BM-warehouse-accounting. In this case, each section adds its own information to the document, but does not repeat each other.

Secondary documents fully or partially repeat the information in primary documents. For example, when a spare part is given, the information in the application is copied to the file in the warehouse, and when receiving the spare part, the information is copied from the receipt.

Many summaries, references, and reports are formed during the processing of traffic sheets, in which the references on the sheets are sorted and copied to other documents (by the brand of cars, specific cars, motorcades, etc.). The analysis of the circulation of documents shows that 77% of the content of secondary documents consists of repeated information, 23% of them partially repeat primary documents. These require automation of the control system. Each department of the enterprise tries to create its own documents, as a result of which information is duplicated, it takes extra time to transfer from one document to another, and the information may be partially corrupted.

Before creating an information system in ATK, first of all, it is necessary to improve and simplify the circulation of documents. It is necessary to preserve the minimum types of normative and reference information and primary documents that should be included in EHM, and to fully automate the processes of storage, search, transfer and formatting of secondary documents, so that employees are free from manual work. they did.

9.3. Types of documents used in the technical service of ATKs and their formalization procedure.

General rules specific to modern information systems should be used in the informatization of production process management.

The basis of any information system is a database (MB). Employees access this database through application package (ADP) or automated workplaces (AIO). AIO is a set of equipment and programs located at the employee's workplace, which allows to perform some of the management tasks in an automated dialogue mode. AIOs can be conditionally divided into categories that enter information into the Mb and those that extract information from the Mb. Enter the data as follows:

- 1) Primary documents (technical passport, travel document, etc.);
- 2) from ATK employees (order for repair, to get spare parts application, etc.);
- 3) Automatic identification of objects (magnetic, barcode, radio frequency and. b.).

If the primary document is created in outside enterprises (for example, a technical passport of a car), data is entered into the computer from a ready-made document. If the document is created in the ATK itself (for example, a repair sheet), there is no need to create it manually. Information about the nature of the malfunction can be entered into the computer by the employee's words (for example, the driver), and the document (if necessary) is automatically created and printed. If the absolute accuracy of the information is required, it is technically possible to enter the data into the computer by some automatic method rather than by an employee. In this case, the means of automatic identification of objects will be activated. In this case, even the primary document is not needed, the system automatically prepares data (for example, data about drivers who went on the road without a license). Naturally, in the creation of information systems, it is necessary to choose the second way.

Obtaining information from Mb takes place in two ways: 1) forming (issued) reports on the activity of enterprise divisions and printing them on the monitor screen or on paper; 2) making managerial decisions using an expert system.

Forming reports (issued) papers is the easiest, traditional way, but employees must have sufficient knowledge and experience. It is necessary to analyze the secondary documents and make the right decisions. The use of expert systems is the most complicated way in terms of creating programs, but the most effective way in terms of scientific proof and optimality of the decisions to be made.

The following are recommended when creating an information system in ATK:

- Exchange of information between ATK units through local computer network;
- review of the entire structure of the enterprise and the circulation of documents, i.e. reduce primary documents as much as possible and form them in EHM, cancellation of secondary and intermediate carriers;
- MMAs separated from current data and stored on magnetic carriers;
- use of a single MMA in all departments of the enterprise; Enter the primary information in EHM once and control the probability of error;
- redistribution of issues in order to reduce information exchanges between IT departments;
- real-time operation of all information systems;
- follow certain steps in creating the system.

Review questions.

1. What are the methods of collecting types of information?
2. In what documents are the activities of departments and employees recorded?
3. What kind of documents are called normative documents?
4. What indicators are used to evaluate perfection in document circulation?
5. List the share and composition of primary and secondary results in ATK?
6. What kind of summaries, references, and reports are formed during the processing of travel documents at ATK?
7. What modern information systems and rules are used in management informatization?
8. What is the order of data entry?
9. What are the recommendations for creating an information system in ATK?

10-Lecture: Application of Delphi, survey, interview methods and simulation modeling and business game in decision-making and case assessment

Study plan:

- 10.1. The Delphi method is an integrative treatment.
- 10.2. Conditions for applying continuous modeling.
- 10.3. Concepts of model, analogy.
- 10.4. Game of businessmen.

10.1. The Delphi method is an integrative treatment.

Delphi method - It is an integrated method based on the critical analysis of each expert's opinion by other experts. The procedure for its application is as follows:

- the leader takes an individual issue and their opinion to each expert;
- experts' opinions (estimates) are placed in the table in ascending order;
- in the rating scale, the number of experts and ratings are divided into four equal parts;
- each group member is given information individually and is invited to revise his/her opinion (assessment) regarding the authorities;
- the results of the second round and the new values are reported to all experts.

Let's say that a group of 12 experts is assigned the task of evaluating the duration of a certain event, for example, the reconstruction of an enterprise.

According to the above procedure, work is carried out in the following sequence:

1. The leader puts this issue in front of each expert and personally assesses them.
2. Experts' ratings are placed in ascending order.
3. $Q_i = 12.5$ on the scale of reference; $Q_2 = M$; Q_3 in which the number of experts and evaluations is divided into four equal shares.
4. The following information is provided for each member of the group separately will be: $Q_i = 12.5$; $Q_2 = M = 17$; $Q_3 = 2.15$ Revision of positions and grades if the new value is lower than Q_1 or higher than Q_3 , the expert is invited to justify his opinion in writing.
5. The second type of results is determined: the new values of Q_1 , M , Q_3 are determined

will be announced to all experts. As a rule, it lasts 3-4 times, then the arguments of the experts are repeated, and the estimates vary stabilizes. The median of the final round is accepted as the opinion of the group is made, i.e. $(Q_2)_3 = M_3$.

The accuracy of the Delphi method increases with the increase in the number of experts and the number of integrations. As the time interval between types and responses increases, it decreases. The advantage of this method is controlled communication, anonymity, the possibility of evaluation, the exchange of expert opinions. The main drawback of the method is the influence of the opinion of the majority on the evaluations of the experts in the integrations after the first round.

Methods of games - One of the ways to make decisions in the context of information scarcity is the analysis of market production or other situations using game theory and statistical decisions. For the mathematical analysis of the situation, a simplified model of the so-called game is created, which is composed of secondary details. In the game, the parties act and their possible strategy, i.e., a set of rules, created in the course of the game, depending on the situation, certain actions are ordered, is considered. Usually, two sides participate in the game, and such a game is called doubles.

If in a real situation opposing parties actively collide, then the game modeling this situation is called conflictual or antagonistic.

In these games, the parties consciously face each other, and the victory of one party means the defeat of the other party.

Usually, two sides are seen when solving organizational, technical and technological issues.

A-organizers of production (active party), i.e. managers of MTX of ATK, technical service stations, enterprises providing services to consumers, all forms of ownership;

Production or set of situations (nature) that arise by chance of P-market.

To get the maximum effect, to make a decision, the active side should adopt such a strategy. In this case, "nature", i.e. the emerging production situations, production organizers do not consciously oppose the measures, but the exact state of "nature" is unknown to them. Games of this type are called games with "nature" (production), the methods used are statistical decisions.

Decision-making in games is based on certain rules. These rules determine the possible options (strategies) of the actions of the parties participating in the game, the availability and extent of information from each party about the actions of others, the result of the game, that is, changing the target function when adding certain strategies, etc. regulates.

10.2. Conditions for applying continuous modeling.

Analytical representation of complex production situations is usually difficult, and conducting experiments under real existing conditions requires large material and time costs, and it is also dangerous for an operating production. For Suning, model and simulation modeling methods are used in decision making and situation assessment.

Model - it is a simplified form of reflection of real processes and interactions in the system, and it allows to study, evaluate and predict the influence of constituent elements affecting the state of the entire system, that is, the change of the target indicator . Models can be physical, mathematical, simulation, etc.

There are a lot of random factors affecting the solution of technological and organizational issues, and simulation modeling methods with incomplete information are used.

10.3. Concepts of model, analogy.

Imitation modeling, imitation means expressing, describing, reflecting, showing the essence of the phenomenon without conducting physical experiments in a real object.

Simulation modeling is the process of constructing a model of a real system and conducting experiments in order to understand or determine the state of the system in this model. The simulation process consists of the following main steps:

1. To describe the system, i.e. to define or determine its boundaries, limitations and performance indicators that need to be studied.
2. Forming the model. Transition from a real system to a logical scheme.
3. Preparing and sorting the necessary data for building the model.
4. Broadcast the model. Expression (transfer, description) in the language of the EHM being used.
5. Assessment of the adequacy of the conclusions obtained in the model, which allows to assess the relative accuracy of the model for the real system.
6. Planning experiments.
7. It is necessary to conduct an experiment, that is, to carry out an imitation get information.
8. Interpretation - drawing conclusions on modeling results.
9. Implementation - modeling in decision making for a real system applying the results and the model in practice.

The duration of the car's breakdown and the periodicity of technical maintenance are determined by the method of simulation modeling of the rational periodicity of technical maintenance in the conditions of variation:

This method is based on the organization (imitation, modeling) of real and random TXK processes. The use of the method accelerates the tests. It allows to eliminate the influence of other factors.

On the basis of observations or experience, several values (I , ... etc.) of maintenance periodicity are assigned and the coefficient of variation - V is also assigned. Two sets of information are created from the results of observations or account book data.

Path corresponding to one disturbance- $[X]$ and periodicity of TXK- $[L]$

A concrete amount of X_i randomly from the first data set. Then, the concrete amount of I_j (determined by taking into account the average periodicity I and its variation V_i) is obtained from the second information set (where there is information on the actual periodicity of TCK). The pair X_i and I_j is called implementation.

10.4. Game of businessmen.

The game of businessmen is used for decision-making in the process of TCK and JT. In this case, a game of businessmen will be organized to find a solution to the problem, the date of its holding will be determined, and the participants will be notified. Incentives will be announced for good participants. It is important for every modern

technical service enterprise to identify an improved version of TXK and JT through the game of businessmen in the current market conditions, to develop a set of documents to encourage its creator and popularize his experience. For this, a plan will be developed to organize a businessmen's game according to the plan at ATK. In the plan, the following actions are carried out: the type of low-quality operations performed in the TCK and JT for the enterprise is determined, and the demand is developed accordingly. The duration of the game is determined, the qualifications of the participants are announced, and the amount of funds for the incentive is determined. The game will be played on time. All performances will be considered according to the plan, the winner will be determined, his level of ability to fulfill the requirement is extremely vital, if it is found to be successful, a certificate will be given, and his activity will be documented.

Review questions.

1. Delphi method - what is the content of the integrative treatment?
2. Explain the accuracy and main disadvantage of the Delphi method?
3. Explain model and simulation modeling techniques?
4. What is imitation?
5. What are the main stages of the simulation process?
6. How is the game of businessmen organized?

11-Lecture: Master of Science in Engineering Systems and Business Features of an Engineer

Study plan:

- 11.1. Bachelor, Master and Engineers Features and Students.
- 11.2. Activities of the composition of engineering and technical staff.
- 11.3. Directions for the activities and promotion of the engineer-technical employee to the target levels.

11.1. Bachelor, Master and Engineers Features and Students.

According to the Law of the Republic of Uzbekistan on "National Program of Personnel Training", education is conducted in 2 stages. At the first stage, a bachelor's degree is prepared, and at the second stage, a master's degree is prepared.

A bachelor's degree meets the following requirements: to be familiar with the main concepts in the field of social, economic and humanitarian sciences, to be able to scientifically analyze social problems and processes, to be able to use the methods of these sciences in various areas of social and professional activity;

- to be able to organize one's work on a scientific basis, to be able to collect, store and analyze the information used in the professional activity through the computer method;

- to know the basics of production relations and management, taking into account technical, financial and human factors;

- to be able to use methods of solving problems related to determining the most appropriate values of various system parameters;

- to be able to re-evaluate the acquired experience in the conditions of social practice and scientific development, to be able to analyze one's own possibilities, to acquire new knowledge using information and educational technology;

- to be able to understand the essence and social importance of the future profession, the main problems of the sciences that clearly determine its field of activity; to be able to see the interrelationship of their teaching in the whole system;

- to have the ability to design based on a systematic approach in the professional field, to create and use models for describing and predicting various events, and to be able to perform their qualitative and quantitative analysis;

- to be able to set goals and tasks related to the implementation of professional work, to be able to use the methods of the studied sciences to solve them.

A bachelor should know: that he connected the basics of scientific and technical issues in the direction with the development of science and related fields;

- using the main objects of phenomena and processes in a certain field and the methods of scientific research in them according to special training;

- to be able to express the basis of basic technical and economic requirements for technical objects and to implement them with the help of available scientific and technical means.

On the basis of a bachelor's degree in "Vehicle engineering" major, a master's degree in "Automobiles and automotive industry" can work in the following specialties:

Project construction: development of a project of modern ATK, reconstruction of the existing ATK production base, technical re-equipment, design and preparation of non-standard technological equipment.

Experiment-research: researching the technical base of production at ATK, technological processes of TX and JT, operational reliability of motor vehicles (ATV);

Production management: development of ATV technical operation ATK and non-standard equipment projects, management of technical operation management departments in the field of motor transport;

Operational-technological: management of the activities of motor transport enterprises, management of technical service departments;

Scientific-pedagogical: pedagogical activities in higher, secondary special and general educational institutions.

General requirements for masters of automobiles and automotive industry

The master must be mature in all aspects, have a fundamental scientific base, the methodology of scientific creativity, know modern information technologies, know how to obtain, work and store scientific information, be ready for scientific-research, scientific-practical and scientific-pedagogical activities.

Requirements for an engineer An engineer is a specialist, relying on his theoretical knowledge, professional skills and business qualities, he ensures the operation of technical and technological systems within the specified parameters based on analysis, calculations and other methods.

The object of the engineer's activity is the car park, and the purpose of the activity is to ensure the reliable operation of the car park with the optimal use of labor and material resources, and to reduce the negative impact on the environment, events and the population.

Activities of the composition of engineering and technical staff

Engineering and technical service personnel from managers; from experts; It consists of entrepreneurs from mass professional personnel (working personnel) and managers of enterprises, organizations and firms that are assistants in transport work. Naturally, this distribution is mandatory for small businesses and entrepreneurs.

According to the situation at the end of 1998, there were about 6.5 million workers in the Russian Federation in all forms of ownership of motor transport enterprises, in the motor transport departments of non-transport organizations, as well as in car service and trade and supply, including 86% of mass professional personnel. , 8.5%-specialists and managers, 5.5%-servants and auxiliary employees.

Specialists in motor transport have various tasks in front of them: transportation and organization of passengers and cargo, ensuring the performance and technical adjustment of motor vehicles, organizing the financial and economic activities of enterprises, ensuring work on traffic safety, performing work in the field of car service. and organization, ensuring and organization of environmental safety of the transport complex, trade and supply, licensing, certification and control-inspection activities. In some cases, these tasks are combined or, on the contrary, divided into more specific parts.

Entrepreneurs also perform these tasks, only in a slightly reduced volume, in addition to driving a car, some work of TXK and T and other jobs. This group includes people with special knowledge in the field of motor transport, drivers with a lot of experience working in large enterprises, and people from other fields who need serious professional training.

Public professional staff includes two main groups of employees:

- drivers who have the right to transport dangerous goods and drive B, S, D, Ye category vehicles;

- repair workers: car mechanics (separation, assembly, adjustment works); automotive electrician; battery technician, camera repairer, gas and electric welder, painter, fuel equipment mechanic, etc. Depending on their qualifications, they will be given appropriate discharge. In a number of cases, TXK and T drivers participate.

In the "Automotive transport" sub-network, up to 29% of the engineer-technical service, and up to 37%, taking into account the drivers participating in TXK and T, correspond to the employees of the automobile transport (10.1-table).

10.1- table.

Approximate composition of employees of the "Automotive transport" sub-network, %.

Employees	ATK			
	freight carrier		passenger carrier	
	all	including MTX	everythin g	including MTX
Drivers Conductors	57,0	7,4*	40,0	8,3*
Repair workers	-	-	6,0	-
Support workers	16,5	16,5	19,0	19,0
Leaders and experts	9,8	6,2	14,0	9,3
Servants	9,7	3,4	9,2	3,1

others	4,0	1,5	4,8	1,7
	3,0	1,0	7,0	3,0
Drivers participating in TXK and T.				

Composition of engineering and technical staff

The following production activities are characteristic of an engineer: technological production; organizational management; design and research; and others.

Depending on the position occupied in the ATK management system, the weight of the contents of the tasks performed by the specialist is redistributed.

10.2- table

The function of the engineer-technical service engineer (MTX).

Function	Time distribution of functions, %			
	MTX is complete	Engineer	Head of the technical department	Chief engineer
Technological	36	80	31	12
Organizational management	32	4	33	50
Educational and public	17	14	23	27
Material and technical support and others	14	3	13	11

The level of promotion of employees to management positions can be mainly in three different directions:

- from production
- from management
- mix

Employees promoted from production started their work from the positions of foreman, mechanic, workshop manager, and production manager. Employees promoted from management started their work as engineers, senior engineers, department heads.

Employees promoted from the mixed direction were promoted to higher positions in production and management.

10.3- table

Senior position	Direktor	Chief engineer
Production	0,21	0,09
Management	0,24	0,13
A mix	0,55	0,78

In 65% of cases, the director started his work in the technical service department;
 In 80% of cases, the future chief engineer started his work in the workshop, mechanics.

The scheme of transition of the career ladder of an ATK engineer.

- a. i. - Ch. scheme, 55%
- b. completion rate 27%
- c. mixed scheme 18%

The scheme of promotion of motor transport engineers in ATK can be implemented according to three different schemes.

The demand for technical service is based on their tasks and the change of these tasks depending on the stages of the management level.

10.4- table

Distribution of tasks performed by a technical service engineer

Tasks	Share, %
Technological	35,6
Organizational management	31,8
Educational and public	16,6
Supply	12,3
Others	3,7

As engineers move up the career ladder, the composition of their duties also changes.

The higher the level of management, the more organizational and public tasks it performs.

According to American experts, the working time balance of a technical service specialist is as follows:

- Solving technical and technological issues -30%
- Solving administrative and organizational issues -30%
- Communications, internal and external -20%
- Employee Relations -20%

According to American experts, the main functions of the head of the engineering service include:

- TX and T planning organization and reporting;
- Working with employees (training them, improving their skills)
- Social issues

Scientists have analyzed that there will be two types of specialists in the future:

A manager who has advanced from a driver or mechanic to a managerial position, and who is familiar with the structure of a car and has experience in all the delicate issues of i-ch, who has a good and perfect knowledge of the method and technique of managing production, American scientists will look to the second kind of specialization in the future. they are leaning more.

12- Lecture: Technical means of management.

Study plan:

12.1. Requirements for complex technical means of management.

12.2. Quick control calculation tools.

From the point of view of providing information, the management process of any production facility can be divided into the following operations:

- Transfer of the object;
- transmission of information;
- information processing;
- analyzing information and making management decisions;
- implementation of the adopted decision.

If the centralized system of TX and T is implemented in the first stage of the organization of the automated subsystem of technical service management of TXK and T, the production management department is provided only with dispatching communication tools and organizational equipment, in the second stage, as noted above it became necessary to use complex tools (KVT) to automate the operations.

KVT solves two types of problems that are fundamentally different in terms of the need to organize the calculation process. The first category includes calendar plan perspective, calculation - statistics and other issues. Solving these issues requires organizing the process of calculating large arrays of incoming and outgoing information. It is possible to solve this problem at the expense of the organization of the efficiency calculation center. The second category includes planning and management of fast production.

KTS: it is necessary to provide planning of TX and T vehicles, calendar and rapid production;

- it is necessary to register the cars standing at the workstations and their garage numbers;
- it is necessary to provide the requested information about the arrival and arrival time of the cars that have arrived and are waiting for provision;
- it is necessary to register cars arriving at work stations;
- he must record this without stopping the car at the work station;
- ensuring the planned time;
- registration of cars standing idle at workstations and the reason;
- registration of the total parking time of cars at each work station;
- find a car according to the request;
- providing information about the stock of spare parts;
- controlling the arrival and departure of workers;
- providing processing and analysis of statistical information;

Depending on the complexity of the issues facing the control system, ASUP (automatic production control system) can distinguish several types of sample schemes with operator participation.

The scheme reflects the main functional connections of the human operator with the KTS. The structural scheme of the integration of technical means of other work systems for the production of vehicles TX and T.

Se of computer and network technology in production management

Principles of creating information networks

General rules specific to modern information systems should be used in the informatization of production process management.

The basis of any information system is a database (MB). Employees access this database through application package (ADP) or automated workplaces (AIO). AIO' is a set of equipment and programs located at the employee's workplace, which allows to perform some of the management tasks in an automated dialogue mode. It is possible to divide AIOs into conditional categories. Data entry is as follows:

- 1) From the primary documents (technical passport, waybill, etc.);
- 2) from ATK employees (repair order, request for spare parts, etc.);
- 3) From means of automatic identification of objects (magnetic, barcode, radio frequency, etc.).

If the primary document is created in external enterprises (for example, a technical passport of a car), the data is entered into the computer from a ready-made document. If the document is created in the ATK itself (for example, a supply sheet), there is no need to create it manually. Information about the nature of the malfunction can be entered by the computer employee (for example, the driver), and the document (if necessary) is automatically created and printed. If the absolute truth of the information is required, it is technically possible to enter the data into the computer by some automatic method, not through an employee. In this case, the means of automatic identification of objects will be activated. In this case, even a primary document is not needed, the system automatically prepares data (for example, data about drivers who went on the road without a license). Naturally, when creating information systems, it is necessary to choose the second way or the third way.

There are two ways to get information from MB:

- 1) creation of reports (to be issued) on the activity of the enterprise's divisions and printing them on the monitor screen or on paper;
- 2) obtaining a manager's decision using an expert system.

Forming reports (issued) papers is the easiest, traditional way, but employees must have sufficient knowledge and experience. This is necessary to analyze secondary documents and make the right decisions. The use of expert systems is the most complex way in terms of creating programs, but the most effective way in terms of scientific proof and optimality of the decision to be made.

The following are recommended when creating an information system in ATK;

- exchange of information between IT departments through local computer network;
- review of the entire structure and document circulation of the building, that is, reduce primary documents as much as possible and form them in EHM, cancel carriers through secondary;
 - Separate MMAs from current data and store them on magnetic carriers;
 - use of single MMA in all departments of the enterprise;
 - Check the probability of even leaving by entering the primary information in EHM once;
- redistribution of issues in order to reduce information exchanges between IT departments;

- real-time operation of all information systems;
- following certain steps in creating the system.

The structure and operation of the information system of management in production

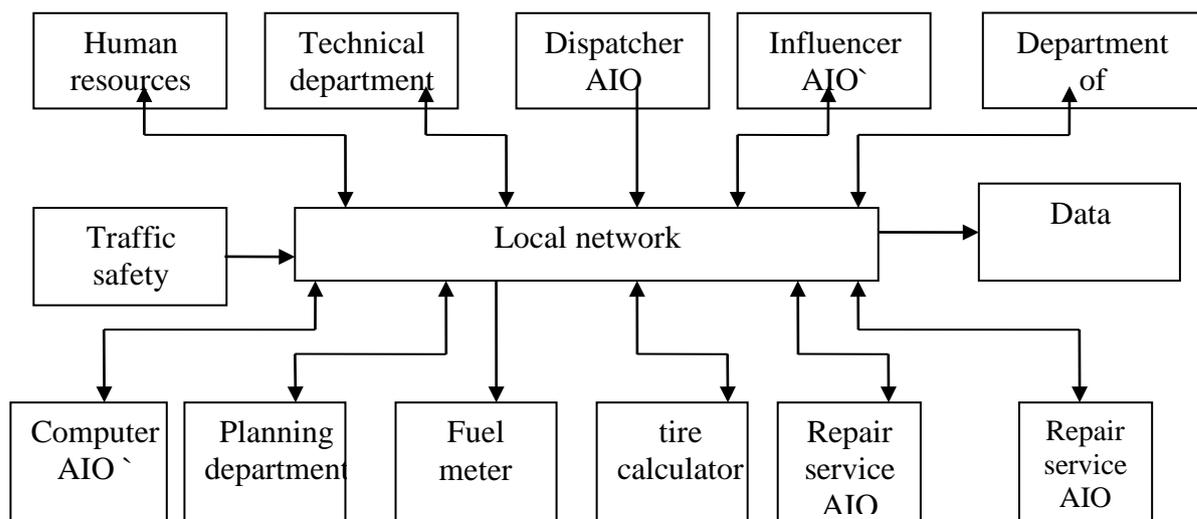
Data processing technology is often not centralized in ATKs, employees themselves process primary documents by hand, create output documents.

The general scheme of IT information system (Fig. 12.1) includes automated workplaces.

The task of some AIO is different in different ATKs (hire, freight, taxi, etc. enterprises). Regardless of this, all jobs must work on the scale of a single (local) network and use a common MB.

The implementation of the information system in ATK is carried out in a certain sequence. All jobs support each other in the information field. At the first stage, jobs will be created with MMA, at the second stage - working with primary current information, and at the third stage - providing release documents.

When creating a complex system of the enterprise, first of all, it is necessary to create "Technical Department" and "Personnel" AIO, because without information about rolling stock and employees, other sub-systems cannot work effectively.



In the second stage, it is necessary to create small systems for dispatcher activity, processing of road documents, accounting for fuel consumption. As a result of the processing of road records, information about fuel consumption, driver's work and the road traveled by vehicles can be formed.

At the third stage, it is possible to create jobs of the accounting department (calculation of wages) and planning department (documents on the analysis of enterprise activity).

At the fourth stage, after taking into account the traveled roads, the technical, repair zone that takes into account the work of the tires (the dispatcher who plans TXK-1, TXK-2, puts them in TXK and JT, those who take into account the work of TXK and JT) it is possible to create AIO for the warehouse.

It is possible to divide the issues that ATK employees do into two groups: accounting - statistical and management related. It is necessary to start the introduction

of information systems in ATK from the first group of issues (taking into account the work of employees, the consumption of fuel and spare parts, repairs, etc.).

Information collection, storage processes and the creation of reports have been established, and it is possible to move on to the second group of issues - management of fleet performance, consumption of fuel, tires and spare parts.

Analyzing the use of EHM in IT, it was found that when documents are processed by machine, the volume of information decreases by 2 times for primary documents and 10-15 times for secondary documents. In general, the cost of information processing can be reduced by 60% when using personal exposures (SHEHM). In this, the difficulty of the cases is divided as follows. Entering data into SHEHM - 95 - 96% processing information and receiving output documents - 4 - 5%.

Thus, the most sensitive part of the technological chain in the introduction of SHEHMs is the manual entry of information into the database. It is possible to automate these tasks with the help of automatic object identification tools.

Paperless technologies and means of identification.

Thus, 95-96% of employees' time is spent on entering primary information into SHEHM. In addition, incidents of deliberate data corruption are possible, especially in passenger transport (adding unfulfilled flights, changing cost regularity indicators, reducing scheduled route revenue, etc.). In order to overcome such shortcomings, means of object identification (magnetic, barcode, radio frequency) and control system are used.

The essence of identification is that objects (vehicles, employees, types of work, spare parts, etc.) are given codes. Codes are written directly to the objects themselves, for example, bar labels (records), radio frequency signs are displayed, and specific information is assigned to these codes in the database of the computer system. This information describes the object itself (for example, the name of the spare part, its price and the quantity in the warehouse). With the help of scanners (devices that read codes), actions performed on objects (input, output) or changes in their state (for repair, sending to TXK), the date and time of these actions are recorded, this information is stored in autonomous collectors and automatically transferred to the computer system. The effectiveness of automatic identification means is the ability to enter information into the computer at once, in which it is impossible to destroy the data either by accident or on purpose.

Beginning 1 2 5 **The end**

1 1 0 1 0 0 0 1 0 1 0 0 1 1 0 1 0 0 1 0 1

The technology of applying magnetic and barcode codes is similar. In both cases, cards with coded information are used. This information is read automatically by special devices. A barcode can be coded in a unique alphabetic way and then read. The lines of barcodes indicate two numbers: the wide line is "1", the narrow one is "0". Each code has three elements: a set of initial lines (the beginning of the code), coded data, a set of lines of the end of the code. There are approximately 20 types of barcodes. The simplest is "5" to "2" (Table 12.1). With this, only numbers (from 0 to 9) can be coded; 5 lines are given for each number, 2 of them are wide and 3 are narrow. Lines in this code do not mean anything, and the space comes with a backslash.

For example, repair sheet number "125" is coded using this code, its number line is 110100010100110100101 (Fig. 12.2). Some codes are complex. For example, in the code called "39" both the lines and their spacing have a certain meaning; with this method, it is possible to encode digital and symbolic information.

Barcode identification methods are used to account for the movement (input, output) of various objects (goods, services, material goods). In addition to the objects themselves, their recipients or providers are also coded (cars, spare parts, aggregates, parts, lubricants, types of work, etc.). There can be givers and takers, employees (storekeepers, drivers, repair workers), and departments (warehouses, production zones, plots). Bar codes can be used in the following accounting issues of ATK:

- movement of spare parts and materials in warehouses;
- work of rolling stock on the road;
- movement of cars in the garage;
- fuel consumption;
- the work of repair zone workers.

With the help of barcode identification of objects, it is possible to enter primary data up to 88 ... 90 percent of EHM, and significantly reduce backward work methods. In general, at the enterprise level, labor costs for entering data into EHM can be reduced by 78...80 percent.

One of the common issues in which barcode identification is used is accounting for the movement of material assets (Figure 12.3). Each item is assigned a unique code. This code is written in the form of a barcode label and is attached to the part (rack or package). Parts can be identified by either the part catalog number or the nomenclature (warehouse) number. The catalog number of parts usually has 11...18 digits, the nomenclature number has 5-6 digits. If the system does not go beyond the scale of the enterprise, a short code (nomenclature code) should be used. If it is used on the scale of the entire network (ATK, car factories, TX stations for cars, spare parts stores, etc.), the barcode identification must be unique for all, that is, the catalog number is used.

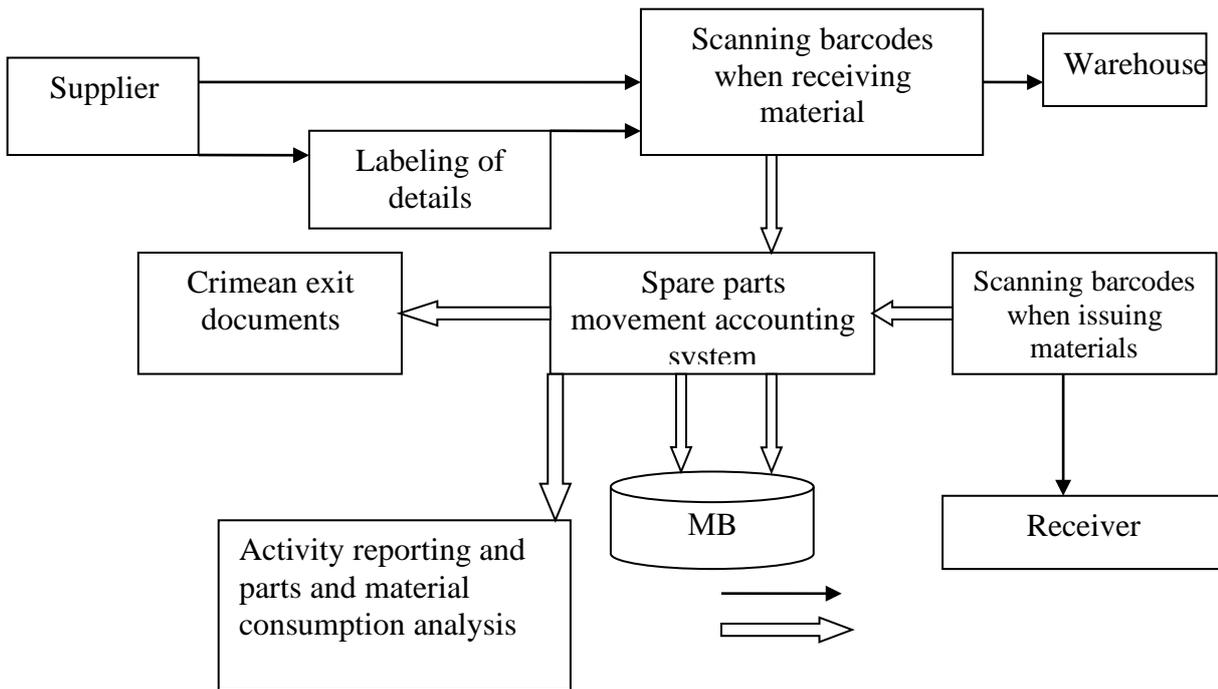
12.1-table

"2 of 5" type barcode alphabet

Information to be encoded	Symbol of the code				
	1	2	3	4	5
1	1	0	0	0	1
2	0	1	0	0	1
3	1	1	0	0	1
4	0	0	1	0	0
5	1	0	1	0	0
6	0	1	1	0	0

7	0	0	0	1	1
8	1	0	0	1	0
9	0	1	0	1	0
0	0	0	1	1	0
of the code	1	1	0		
Beginning	1	0	1		
End of code					

12.2- picture

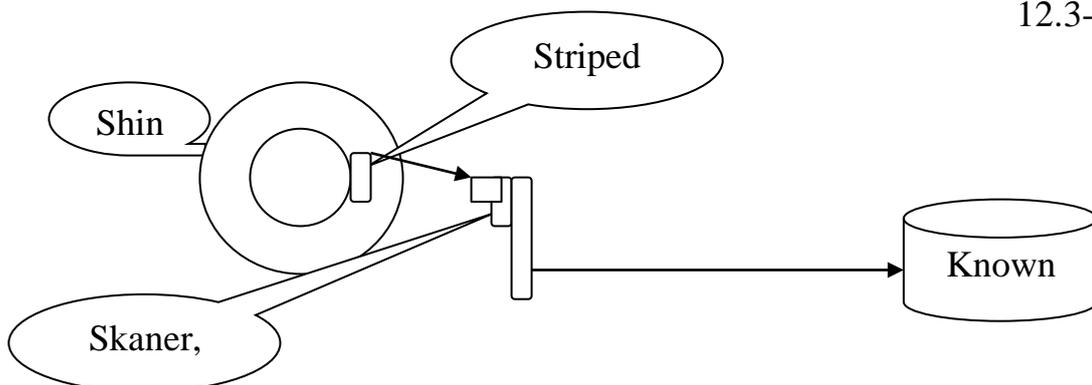


The scheme of accounting for the movement of spare parts in ATK using bar coding.

1- movement of materials; 2- information

When processing the materials arriving at ATK using a scanner, the EHM includes their codes and quantities. The system that takes into account the movement of spare parts receives this information, records it in the appropriate electronic files and (if necessary) creates a receipt document. If there is no bar code on the received parts (or warehouse racks), it is created according to a special program, printed on paper and glued to the part (or packaging).

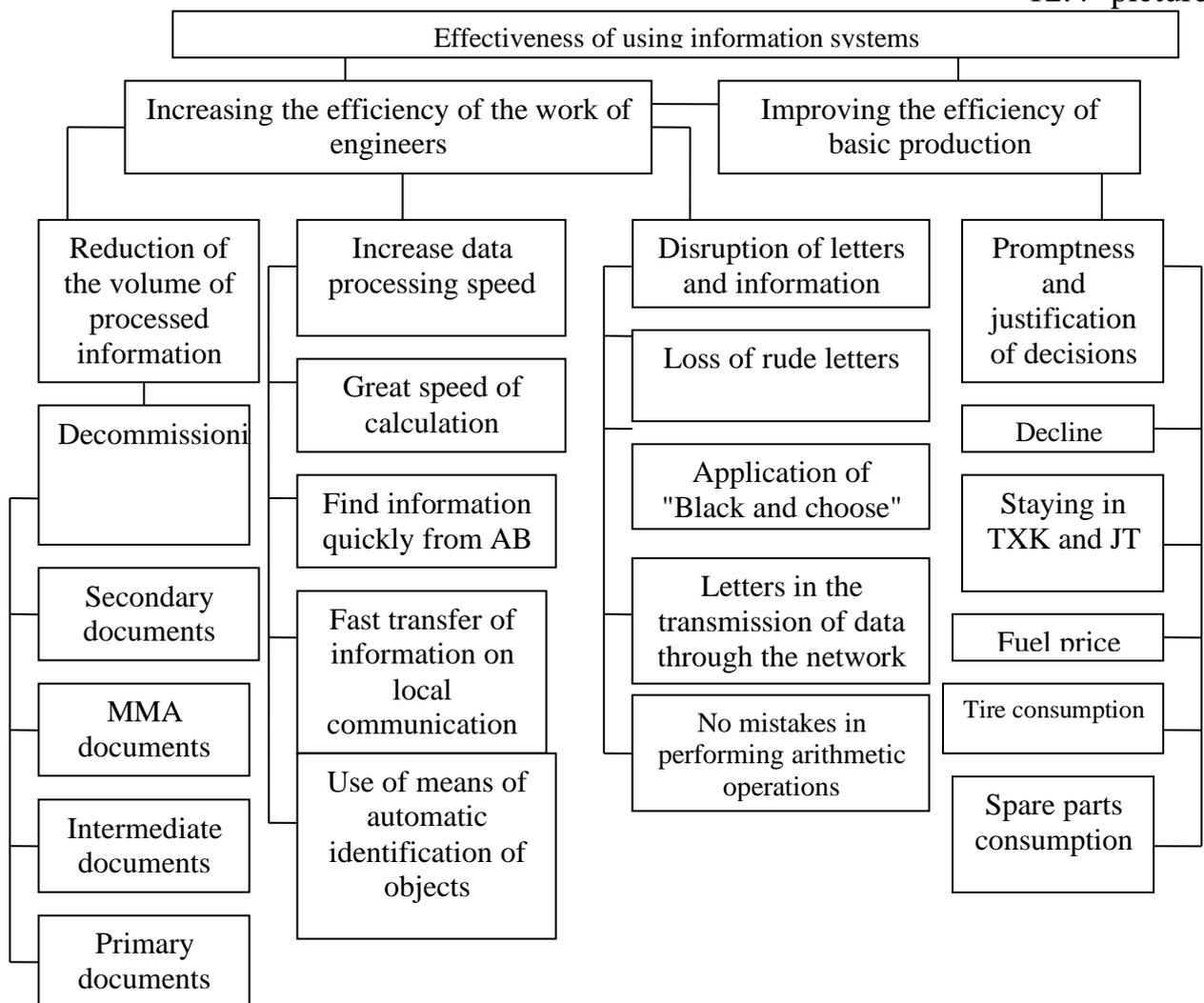
12.3- picture



Automation scheme of tire resource management using automatic object identification tools.

When giving the spare parts, the warehouse worker reads the barcode of the receiver, the details he is giving and indicates the amount. This information is sent to the spare parts accounting system through a scanner, corrections are made to the corresponding files (if necessary), and expense documents are created. The spare parts accounting system has a block of practical programs, with the help of which it is possible to analyze the consumption of spare parts and create relevant reporting documents. In recent years, the interest in automating the operation of vehicles with the help of fast information has increased. Let's consider one of such examples - the issue of tire resource management using bar code and radio wave coding (Fig. 12.4). Tires are identified using barcode labels or microchip transponders. Labels are attached to the side of the tire with rubber glue, and barcodes are applied with special ink that does not fade due to stretching and friction. Barcodes are read using a scanner. The radio wave microcircuit is attached to the inner side of the tire, and its location is determined by the outer side of the tire. The microcircuit does not have a power source, it wakes up when a special scanner is brought closer to it by 15...20 cm. Then the microcircuit transmits the number of the tire in the form of a ten-digit identification number. This number will be remembered by the scanner.

12.4- picture



When using information systems, the factors that increase the efficiency of the enterprise's work are transferred to the computer and used in further calculations. The computer calculates the consumption of tires according to the vice-rector's pattern, according to cars, directions of work, etc. analyzes by signs. This allows to quickly take action on deviations in the speed of tire wear, to predict the costs of wear, and to evaluate the work of companies that manufacture and repair tires.

The effectiveness of the information system depends on its structure (the number and composition of the AIO, the list of issues to be resolved, the technical means used, etc.), its use has a positive effect not only on the efficiency of the employees' work, but also on the production itself. is enough.

When using EHMs, the volume of information processed manually by employees decreases by 60%, the speed and speed of processing increases by a hundred or even a thousand times, and errors are sharply reduced. However, the main efficiency (55...60%) corresponds to the main production management issues. This includes speed of decisions, control of work execution, reduction of downtime, cost of spare parts, etc.

Review questions.

1. Principles of creating information networks?
2. Using networking techniques?
3. Quick management calculators?
4. Requirements for complex technical means of management?
5. Paperless technologies?
6. Application of barcode identification?
7. Registration of materials arriving at ATK using a scanner?
8. Tire resource management automation?
9. Effectiveness of using information systems?
10. Factors to increase work efficiency in ATK?

EXPERIMENTAL TRAINING MATERIALS

1-Experiment work

Topic: Studying the work of the chief mechanic department.

1. Purpose of work: Studying the work of the chief mechanic department in motor transport enterprises.

General information: The main mechanical service association (ATK) carries out tasks related to the development of the production equipment base, maintenance of buildings, power units, sanitary equipment, technological equipment and equipment in technical condition.

Based on the general purpose of the divisions. The chief mechanic service is responsible for:

- Controlling the technical condition of the basic elements of production equipment;
- Taking into account the presence and condition of the elements of the basis of production technology;
- TXK and T to the elements.
- Introduction of new technology;
- Preparation of non-standard devices and equipment;
- Installing, moving and adjusting equipment.
- Carrying out construction work in areas where there is no capital construction department.

The head of the service is the chief mechanic, who reports to the chief engineer of the association. The duties and rights of the chief mechanic are determined by the purpose and tasks of the service.

The principle image of the composition of the joint chief mechanic service is presented in (fig. 1).

The content of the work:

1. To study the organizational structure of the chief mechanic service at the level of the union and ATK.
2. To study the production activities of the main mechanical department of ATK.
3. To study the methods and technological process of TXK and T for ATK technological devices and equipment.

IV. Place of work

The work is carried out in the production technical base and main mechanical department of a certain ATK.

List of details and components of the device:

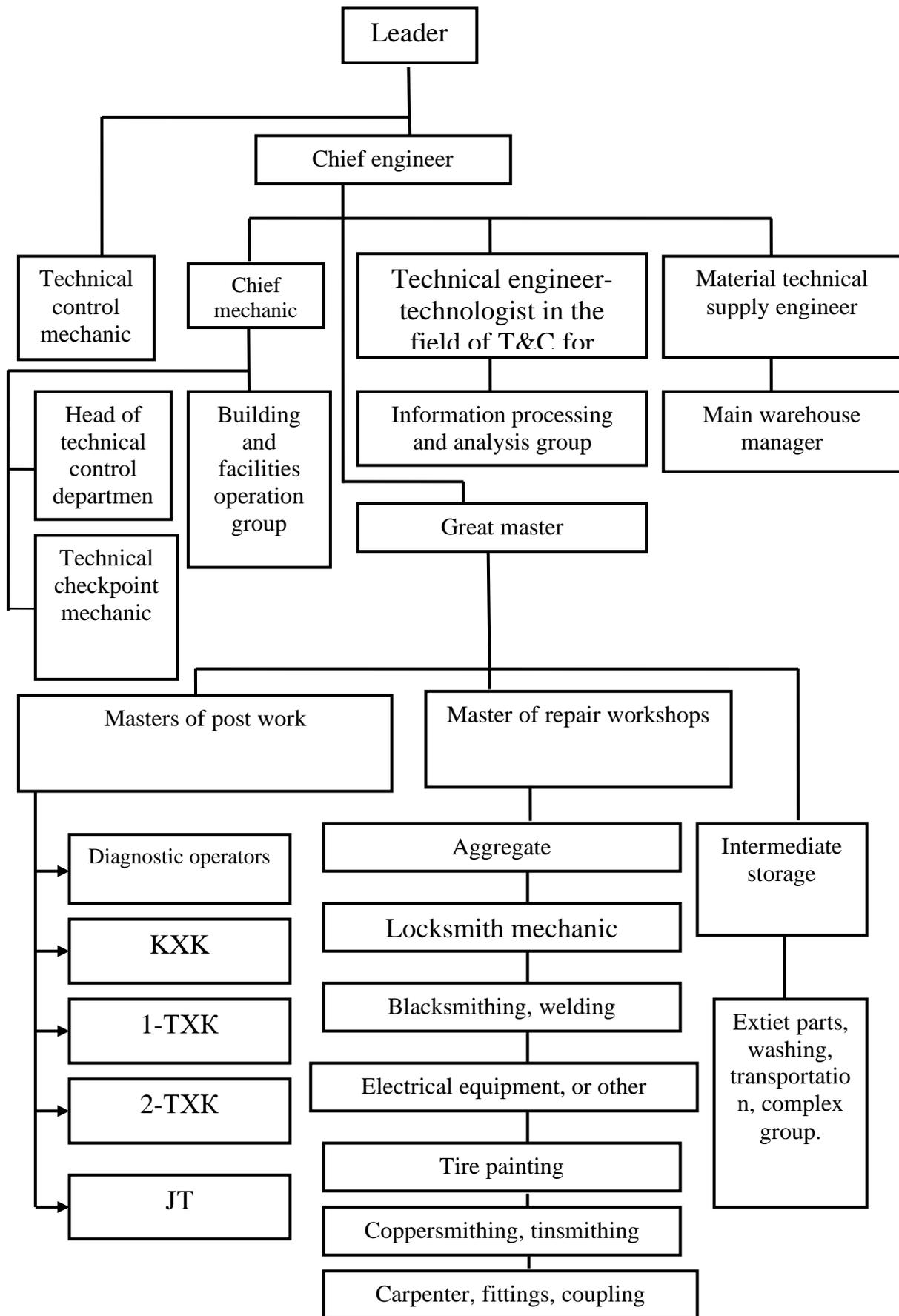
1.
2.
3.

ATK technological equipment TXK and adjustment technological process map.

jadval

Equipment name			A student			
No	Number of operations	Place of execution	Tools and equipment	Execution time, min	Working class	Technical requirements

	and transitions					ts



on "Organization of the work of the main mechanical department at ATK".

Report.

A student: _____ guruxi _____

Leader _____

The place where it was held _____

Date (day, month, year) _____

2-Experiment work

Topic: Studying the work of the technical control department at ATK.

I. Purpose of work: Introducing students to the work of the technical control department at motor transport enterprises.

II. General information

Quality control of technical service and repair of cars is part of the production process. In short, control prevents the production of defective products and enables the production of quality products. In the production processes, the quality of TXK and T is created and assessed by direct control (even during the operation of the vehicle). It is possible to know that the work is done in good quality, and that the cars work without damage for a long time after the maintenance and repair.

The quality of maintenance and repair of cars, rolling stock has a great impact on traffic safety, downtime and consumption. It is a complex task to effectively organize and control the quality of automotive parts and accessories (related to this production, type of work). Many types and small-scale works are performed at TXK and T for cars (units). It takes a lot of time to monitor their full-scale work. For example: full control of the completion (in volume) and quality of the work of the automotive repair and maintenance department takes up to 50% of the supervisor's time. Therefore, it is necessary to repeat such control to a certain extent. In addition, the quality of many works is monitored during the production process, and the quality of the work is assessed. However, after the work is completed, it is not monitored and evaluated. Since such observations are very complex, they are not carried out in sufficient numbers. That is why, as a rule, it is impossible to control all the work done in production. The technical control department (TNB) is entrusted with the task of monitoring the quality performance (observation) of the TCK and T works in the rolling stock.

The number of employees (staff) of the technical control department and their distribution to workplaces depends on the capacity and work order of the automobile plant. In practice (albeit in a small amount) control works are carried out by foreman and mechanics (belonging to production units). Quality control of maintenance and repairs is directly related to control of the technical condition of cars. Therefore, the driver controls the transfer of "his" car, quality TXK and T. Since they are interested in the long-term operation of "their" car without breaking down (in turn, they themselves), they are demanding supervisors. In many automobile enterprises, TNB specialists focus on checking the technical condition of rolling stock (when leaving work and returning to ATK) and the quality of work performed directly on the vehicle itself. The quality of repair of parts, joints and aggregates removed from the car is usually checked by TNB specialists or foremen of relevant production departments. The better the production is organized, the larger the work is supervised by the foremen of different production

departments. The responsibility of the quality control work carried out by TNB specialists, that is, the responsibility for poor quality work and for sending the rolling stock to work without defects, is not assumed by the managers of the automobile enterprise (relevant divisions).

The quality control of the work performed on the car is carried out directly at the vehicle inspection, diagnosis and repair, and NTP posts. The quality of repair of joints and aggregates removed from the car is checked in the production units directly related to these works. After the completion of the 1st and 2nd TPs, not only their quality, but also the implementation of all accepted actions are checked. Vehicles and aggregates are monitored from the outside (by painting) with the help of carrying tools and existing equipment that diagnose the technical condition of vehicles. The use of diagnostic tools in determining the quality of the work performed and the readiness of the vehicles for operation allows (in a short time) to determine the real indicators. Therefore, recently, diagnostic tools are used on a large scale to control the quality of maintenance and repair of cars.

In order to reduce time consumption, units serviced in one of the production units or a certain part of the car are selected for control, or the link that ensures traffic safety, the condition of the unit, and the performance of more complex work are monitored. The execution of the specified current repair is usually controlled depending on the content of the repair order (invoice) and what is written in the invoice. Depending on the content of the performed repair, its quality is checked by drawing from the outside or using a car diagnostic machine. After the car is inspected, all specified works are performed in accordance with the level of technical requirements (conditions) and the car is ready for use, the NTP mechanic signs the account sheet and takes it with him and sends the car to work or residence. he won't. If the car is found to have malfunctions, it will be sent to a locksmith (who repaired that car) to fix it. Identified invalid (bracket) parts are recorded in the account sheet or in the journal of calculation of invalid works. According to the calculation data, the NTP and the heads of the production units determine the cause of the failure and the poor quality work performer (guilty), and determine and implement the necessary measures to improve the quality of work in all production units. The results of the calculation of low-quality work are used to determine the value of awards to workers and employees of production units.

Post and production regions with the following indices is defined (Fig. 5.1):

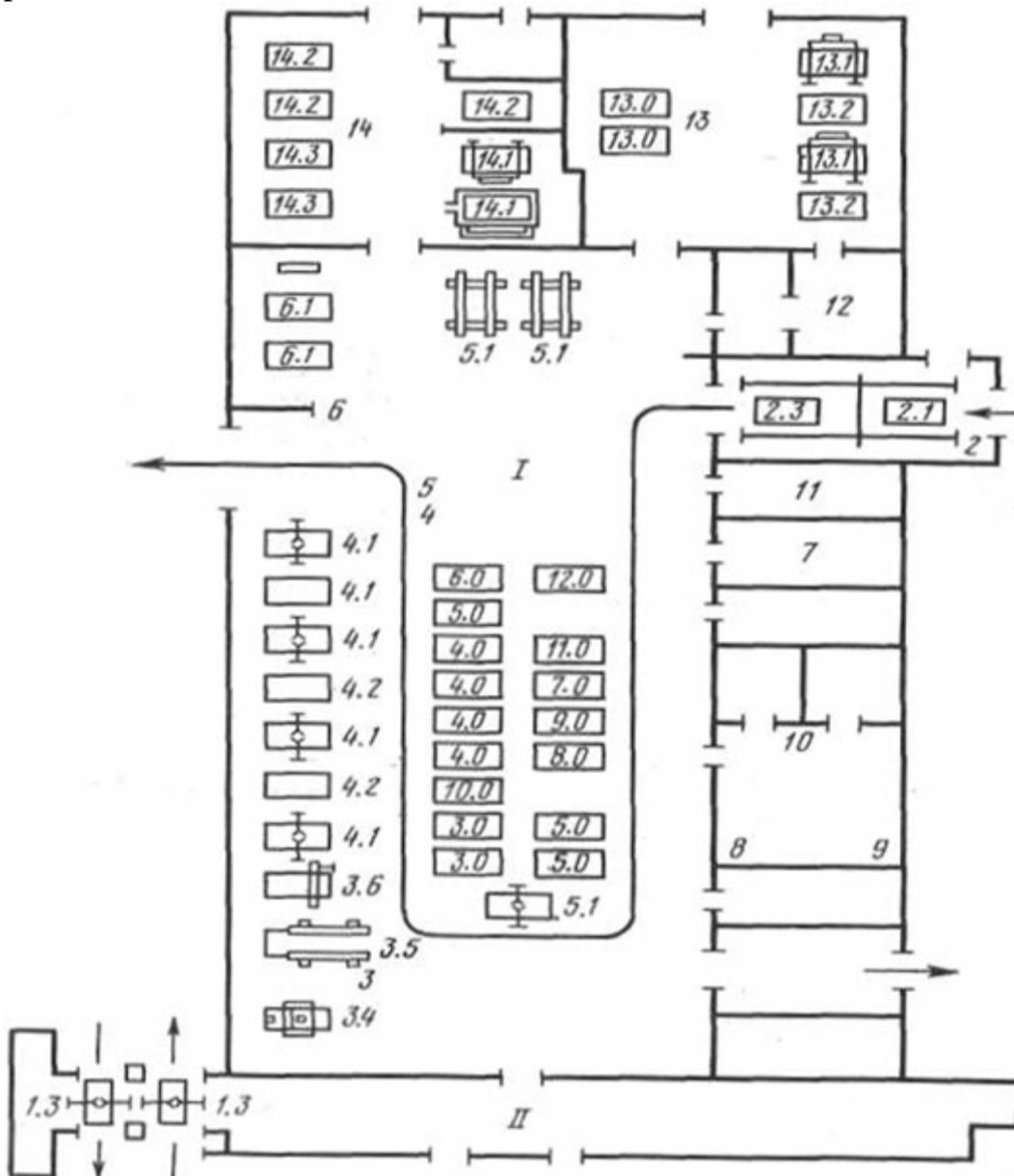
- 1st reception and delivery region;
- 1.3 control, reception and delivery post (auxiliary post);
- 2nd washing department; 2.1 washing post (worker); 2.3-drying post (assistant);
- 3-diagnostic department; 3.4 has a brake system inspection device working post;
- 3.5- angles of installation of control wheels workstation equipped with inspection and adjustment equipment;

IV. Equipping workplaces

The training will be held at advanced enterprises in Namangan city (Bus Palace No. 17, "Taxi" joint-stock company auto enterprise, Namangan freight transportation DUK, Namangan Avtotexxizmat JSC, i.e. branches of the department). Existing equipment will be used at the auto transport enterprise.

V. Order of work

During the practice session, students are divided into five groups and work on posts.



- 4-TXK region; 4.0- waiting place for cars;
- 4.1 TCK workstation with fixed waiting equipment;
- 4.2- TXK surface working post;
- 5-JT post; 5.0-car waiting area;
- 5.1 JT post with a fixed lifting device;
- 6th lubrication department; 6.0-car waiting area;
- 6.1.- a working station with a fixed lifting device;
- 7-battery repair and charging workshop;
- 7.0- waiting place for cars;
- 8- electrical equipment and tools repair workshop;
- 8.0- waiting place for cars;
- 9-fuel supply system equipment repair workshop;
- 9.0- waiting place for cars;
- 10-aggregate-mechanics department;
- 10.0-car waiting area;

11-shinomontage department; 11.0-car waiting area;
12-coating aggregate workshop;
12.0-car waiting area;
13-body repair workshop; 13.0 queue of cars
waiting area; 13.1 work station with a fixed lift; 13.2-ground work station;
14-painting workshop; 14.1 work station with a fixed lift;
14.2- above-ground work station; 14.3 auxiliary post.

III. The content of the work

Studying the work of the technical control department:

1. Getting to know the work of controlling cars when they go to work and when they return from work.
2. Getting to know the quality control of car washing works.
3. Quality control of car diagnostics.
4. Controlling the quality of works of TCC for cars.
5. Quality control of car repair works.

First post is located at the technical control point (NTP) to control the departure and return of vehicles. In this post, students, together with the mechanic on duty, check the technical condition of the car's safety-related systems (brake system, steering control, position lights, turn signals, stop-signal light, tire pressure, main parts are checked for tightness). In addition, the daily and daily mileage of vehicles since the beginning of operation is recorded here. A sign is placed on the road sheet that cars should stop at the next 1-TXK or 2-TXK.

Second post located in the washing-cleaning area, where students observe the technological process of car washing and the treatment of used water. In this post, students check the quality of washing (the presence of dirt residues, oil residues, moisture, etc.) after leaving the car wash area. In addition, they control the quality of used water treatment.

The third post located in the diagnostic region. In this post, students observe the process of car diagnostics together with the diagnostician and control whether the technical condition of the cars is correctly diagnosed.

The fourth post cars are located in the 1st TXK and 2nd TXK regions. In this post, students together with the regional foreman control the technology of execution of the volume of TXK works.

The fifth post located in the region of current maintenance. In this position, together with the regional foreman, the students control the quality of removing, repairing and installing car networks and aggregates from the car.

"Organization of the work of the technical control department at the National Technical Committee".

Report.

A student: _____ guruxi _____

Leader _____

The place where it was held _____

Date (day, month, year) _____

3-Experiment work

Topic: The system of centralized conditions of production

I. Purpose of work: To teach students the centralized management system of car maintenance and repair production at motor transport enterprises.

II. General information

The main task of the centralized production management system is to solve and process information about the scope of work and production resources, as well as to plan and control the activities of production departments based on the available information.

The production management center consists of two departments: operational management department (TBB) and information processing and analysis department (MIBTKB).

The centralized management system of production is managed by the chief, the dispatcher of the operational management department and their assistants, technical operators, perform the main operational management work. The number of employees of the centralized production control system is determined by the total volume of work they perform (with the number of cars in the ATK, with the availability of technical means of management, etc.).

Employees of the emergency management department perform the following main tasks:

- receives the shift, i.e. records the state of production, the executed program, the measurement of unfinished production, existing errors and deviations (fixiruet);
- carries out rapid control of the implementation of diagnostic, 1st TN, 2nd TN plans;
- implements rapid planning, adjustment, accounting and control of maintenance work of moving content, i.e. receives orders for repairs, sets the order of work execution, determines the planned time for completion of the intended work, ensures the timely delivery of cars to repair stations, assigns tasks to foremen or executors, assigns tasks to complex production preparation staff on the delivery of spare parts and materials, and periodically monitors its implementation;
- organizes and supervises the work on the timely preparation of spare parts and materials for carrying out regulated work and repairs, that is, takes into account the results of diagnostics, prepares the production for conducting TXK and T provides;
- assigns a shift.

The department of information processing and analysis is responsible for performing all the work related to the organization of information provision of the management system.

The main task of the data processing and analysis department is to systematize, process, analyze and store information about the activities of all technical service departments, as well as the movement of the main aggregates of vehicles and technical training. is to consider planning secrets. The data processing and analysis department includes workers on planning and accounting of repair documents and data processing, as well as technical effects.

The data processing and analysis department performs the following main tasks:

- - receives initial documents for processing, controls their correct and complete filling and prepares information for further processing (on site or in the computing center (CCM));
- - processes information with the help of simple computing equipment and personal computers, that is, forming, classifying and systematizing information, collecting them according to appropriate sections and forms. If the information is processed in the EHM, the MIBTQB performs the tasks of sending it to the EHM for encryption and receiving the results of data processing;
- - analyzes the data according to the result of processing and gives the materials to the leaders to take a concrete action and develop an action to improve the work of ATK MTX;
- - the sequence of the distance covered by the car is calculated on the personal card, during repair, the cases of replacement of the main units (engine, gearbox, bridge, etc.) are determined and the distance covered is taken into account separately, plans to inject vehicles with TXK and diagnostics based on the actual route traveled.

Supply of TXK diagnostic and JT complexes with spare parts and materials. It is carried out according to the instructions for the complex preparation of the production of the centralized production management system. The dispatcher of the production centralized control system performs the rapid management of complex production preparation (ICT) using the technical rapid communication tool of complex production preparation.

Delivery and distribution of parts, networks and aggregates is carried out by the assembly department in the following sequence: based on the information in the repair sheet, the centralized management system determines the demand for the production of details, networks and aggregates needed for the repair work. ;

The dispatcher of the centralized production control system IKT orders the operator-mechanic to ensure the delivery of the necessary spare part to the post;

The ICT technical operator checks the presence of the necessary spare parts in the intermediate and main warehouse and instructs one of the fitters to deliver the required spare part to the post of the production complex.

The IKT technical operator contacts the dispatcher of the centralized production control system only in cases where he cannot complete the assigned task on time.

Based on the information about the available reserves in the intermediate and main warehouses, the payment of the pending reserves and the existing repair fund, the head of the IMBT together with the heads of the ITK and TU complexes will issue an order for the repair (preparation) of aggregates, networks and details in the repair sections. plans the complex to different participants.

On the basis of this plan, the section of ITK completes the repair fund to the section of TU complex. It takes the repaired aggregates, networks and details to the main or intermediate warehouse.

In addition to the central warehouse, an intermediate warehouse, which is part of the ITK, is organized in each enterprise. The main part of the nomenclature of the intermediate warehouse consists of self-repaired and prepared aggregates, networks and details obtained from repair factories.

The adjustment of reserves is seen in the principle of providing a non-decreasing level, that is, control of the number of details, aggregates, networks for each designation established in the nomenclature, placing an order to fill this or that element. This ensures the reliable operation of the production preparation process and eliminates the need for cars to wait for spare parts. The necessary equipment and warehouse space are selected based on the established nomenclature and reserve ratio. The intermediate warehouse storekeeper controls the quantity and condition of stocks in the warehouse. Delivery of spare parts is carried out by exchange with receipt.

Before implementing the automated management system (ABT), it is recommended to organize the monitoring and adjustment of warehouse stock as follows.

Special pockets for signal labels are installed in the rack where spare parts are stored. These carmons are labeled:

It is red from below, then yellow, and green from above, so that the person passing by their colors can see them.

The code and name of the spare part, the reserve standard, the date of receipt or injection of the label are indicated on the label.

When there is a demand for any detail, the warehouseman brings the formalized and approved demand based on the IMBT instructions.

After receiving the application, the warehouseman takes the necessary part from the rack and gives it to the fitter-completer to take to the production department. At the same time, the storekeeper stands in front of the cell and compares the availability of details with the reserve standard shown on the label.

If the balance remains minimal after visiting the cell, the storekeeper takes the green label and brings it to the pocket on the table.

If the reserve is less than the minimum, a yellow label is brought, if there is not a single detail left in the cell, a red label is also brought and placed in the pocket on the scoreboard.

During the shift, based on the labels on the board, the warehouse manager prepares a notification about the absence of details in the warehouse (on a blank with a red strip), and the presence of less than the standard details (on blanks with a yellow or green strip) and is given to the TU complex and, taking into account the priority, the production order to the workshops and sections serves as a basis for correction.

Until it is filled with stock, the label is on the board in the warehouse office. After the arrival of finished details or replenishment of stocks, labels are removed to the pockets of the cells.

The availability of a non-decreasing stock of spare parts in an intermediate warehouse at a certain time is the basis for material stimulation at the expense of the material stimulation fund.

Centralized control system of production of TCK and T written on the rolling stock at ATK, research and advanced ATK work practice have shown that it reduces the excess of cars, as well as the use of improved methods of production organization and management. at the expense of reducing non-production worker and managerial staff time. During the shift, based on the labels on the board, the warehouse manager prepares a notification about the absence of details in the warehouse (on a blank with a red strip), and the presence of less than the standard details (on blanks with a yellow or

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III. The content of the work

To study the work of centralized management system of production:

1. Getting to know the centralized production management system;
2. Getting to know the work of the rapid management department;
3. Getting to know the work of the data processing and analysis department;
4. Getting to know the work of the complex production preparation department;
5. Acquaintance with warehouse operations.

IV. Workplace equipment

The training will be held at the advanced enterprises of Namangan city, i.e. at the branches of the department "Use of transport means". For this purpose, existing equipment is used in ATK.

V. Order of work

Students get acquainted with the existing production form of the motor vehicle enterprise, analyze it and make a solution.

During this experimental work, students get acquainted with the functions and tasks of the units of the centralized production management system:

1. Together with the head of the department, they familiarize themselves with the work and documents used in the emergency management unit. The quick control department receives a shift, in which they record the remaining work from the previous shift, the completed program, the unfinished work and the production status. Rapidly monitors the implementation of diagnostics, 1st TN and 2nd TN plans. Performs rapid planning, adjustment, accounting and control of repair works. Organizes and controls the timely preparation of spare parts and materials. Assigns a shift.

2. Get acquainted with the work of the data processing and analysis department (MIBTB). In this, students get acquainted with the work of systematization, processing analysis and storage of information about the activity of technical departments of MITB, as well as taking into account the planning of the technical impact of vehicles on the main aggregates.

3. Students get acquainted with the work of the complex production training department. In this, students get acquainted with the order in which the assembly section carries out delivery and distribution of details, networks and aggregates.

4. Students will get acquainted with the control and adjustment of stock in warehouses. They get acquainted with the storage of spare parts in the warehouse, their demand and distribution methods.

Report

Place of execution.

1. Getting to know the work of the emergency management department.
2. Report on the work of the data processing and analysis department.
3. Report on the complex preparation of production.
4. Report on the work of the warehouse.
5. Draw the ICHMBT scheme

4-Experimental work

Topic: Organizing a businessmen's game by industry

I. Purpose of work: The President of the Republic of Uzbekistan, I.A. Karimov, speaking about the National program for personnel training, said that the main condition of our program should be the training of fully qualified highly qualified personnel. Only such personnel clarify and determine the competitiveness of education, science and production, and the economy as a whole.

Based on the above, in order to train quality personnel, it is necessary to widely apply active teaching methods to educational processes. One of the methods of improving students' knowledge is a business game.

A business game is an imitation of a situation used in the process of training and development of real business activities and solving specific organizational technical tasks.

Imitation is imagining and realizing the meaning of a phenomenon without physical experience in a real object. The business game refers to the method of active training of specialists, because it differs from the usual training in that, together with the teacher, the students themselves actively participate.

The process of making a management decision in a business game consists of step-by-step identification and analysis of the information obtained during the game.

The state of production is a set of interrelated factors and events that characterize specific economic practices and require management.

A business game, often called a management simulation game. Recently, this game is widely used in teaching students in higher educational institutions.

One of the goals of business games is to develop the skills of business managers in solving specific management situations. The more normal the situation, the more active the game and the more effective the result.

In the business game, another important goal is to form the ability of game participants to have a comprehensive view of the problem, that is, to see the phenomenon together with others and to think systematically. Using the business game develops students' ability to think creatively.

The business game should be structured in such a way that its participants can demonstrate their knowledge, understanding, ability to think interpretatively, feel events (intuition) and imaginary knowledge (fantasy).

In the planned business game, modeling the activities of various departments of the motor transport enterprise under the leadership of the director.

In this game, skills are formed on ways to increase the technical training coefficient of the active staff of the motor transport company by conducting technical organizational events.

The business game is aimed at strengthening and deepening the theoretical knowledge of students on the organization and management of the production of TCK and T for cars at ATK, and it includes the following:

- to improve the level of provision of the production base;
- increase the capacity of ATK;
- to reduce the number of different brands in the car park, i.e. to provide cars of the same brand as much as possible;
- raising the level of mechanization in the production process.

Depending on the changes in the objective or subjective conditions of the participants of the game, it is decided to develop measures to improve the technical readiness of cars.

The business game will be held on the topic of "Increasing the coefficient of technical preparation of cars in the ATK" on the example of a bus palace.

The goal of the game is to form practical skills in students, to develop activities to increase the technical training coefficient of cars in motor transport enterprises based on lectures and practical exercises, as well as decisions, guidelines and methodical instructions. In this, the logical sequence of actions performed in improving the technical readiness of cars is played.

Game rules are set to 8 hours. In the first two hours, an introductory lecture is given. A questionnaire is made, roles are distributed among the participants of the game, tasks and goals are determined for each department of the ATK, and they are assigned the task of management. The participants of the game will get acquainted with the initial information and changes in the state. In the next second hour, organizational and technical measures to improve the technical readiness of cars will be developed and arranged.

In the second lesson, the effectiveness of measures taken to improve the changed production situation is determined, and small groups report on the completion of the task. The obtained results are discussed and summarized.

II. Task of business game participants.

The game is played in an academic group. Students in the group are divided into six small groups. The head (director) of the motor transport enterprise is selected based on sociometric research. Arbitrage from one small group (2 people), from the remaining five small groups (3-4 people) the departments of the automobile enterprise (material supply, technical service, technical control departments, maintenance and repair

regions) is organized. In the game, the teacher plays the role of administrator. It simulates a superior organization

1. **Game administrator-teacher.** The role of the teacher in conducting the business game is multifaceted. He is a guide before the game, a consultant during the game, a judge at the end of the game, and finally the leader of the discussion. All this requires great knowledge and skill from the teacher: he should have theoretical and practical knowledge of the issue under consideration, be able to analyze it, hold a discussion, and generally be a well-educated person. In addition to these qualities, any teacher should be able to use active methods of teaching. The leader of the business game should be well aware of the uniqueness of this method of teaching. A business game is a living model of processes, with instructions and laws, not everything can be seen in the game. Each game is different every time, and the teacher has to keep the game going in the right direction.
2. **Purpose of Arbitration.** It is necessary to lead the game, analyze the results and decisions, evaluate the participants of the game, compare the results and rank the participants according to the result.
3. **Head of ATK.** The purpose of leadership is to coordinate the work of departments and regions, to coordinate actions, to authorize the work of departments: to allocate resources, to evaluate the method and to make decisions. The management of ATK controls the activities of the departments, checks and accepts or rejects the decision made by them, carries out "intersection" of the decisions of the departments, that is, according to the results of the calculations by the departments, they plan according to the ATK conducts accounting work.
4. **Material and technical supply department (MTT)-** reduces the number of brands of the rolling stock in the motor transport company, that is, brings the car factory closer to the same brand, plans the norms of consumption of fuel, lubricants and spare parts. Creates a plan to increase the capacity of ATK. Technical service and current repair regions and repair workshops determine measures to increase the level of mechanization of production processes.
5. **Technical service department.** Makes decisions on minimizing costs for vehicle maintenance and repair. It calculates the plan indicators for TXK and T for the active content. Presents the plan material for the TSC and T to the active staff to other departments and the management of the ATK.
6. **Department of technical control.** All production departments carry out quality control of the work performed. Controls the technical condition of vehicles at the start and return.
7. **TXK and T region.** The foreman schedules rolling stock maintenance downtime. Creates a plan to ensure the quality performance of regulatory TCC works. Makes changes to the technology of T&C works for cars depending on the level of mechanization of the region. Creates a plan of activities to improve the quality of maintenance and repair.

III. The interest and criteria of the participants of the game

The decisions made by the participants of the game, their contribution to the overall result of the game is evaluated by the sum of the accumulated points. The participation of the game participants is evaluated with points. Decisions that ensure such a good result are evaluated with incentive points, and decisions that do not get a good result are evaluated with a negative sign, that is, with penalty points.

Let's assume that the activities to improve the technical readiness of cars are extensive. An a priori assessment of the effectiveness of the event is required. In this case, a more important event is given 1 chin, a less important event is given 2 chins, and so on. The ranking of the results of the events is given in the form in Appendix 1.

The criterion of the quality of the decision made by a small group or individual participant is the sum of the squares of deviations from the actual assessment of the importance of the event, which is determined by the following formula:

$$\sigma_j^2 = \sum_{i=1}^n (S_{ij} - S_{iyy})^2,$$

here - the sum of the squared deviations of the response of the small group or the unit of the game from the actual assessment of the importance of the event;

S_{ij} , S_{iyy} - the actual and given j -unit of the game, respectively.

The amount of points received by j subgroup or game unit

K_j - is determined as needed.

$$K_j = 20 \frac{\sigma_{\min}^2}{\sigma_i^2},$$

here σ_{\min}^2 - the sum of the squares of the minimum (least) deviations.

The maximum number of points for the first game situation is 20, and for the second economic situation, the decision quality criterion indicates the effectiveness of the event in a certain time and the correctness of the economic calculation.

High-quality and timely decisions made by each of its participants are evaluated by the sum of points. (Appendixes 2, 5 and 6).

A fine is imposed for making a mistake in making a decision, performing accounting work, issuing documents, and violating production discipline (appendices 3, 4, 6).

The conclusion is made in the form of a table on the board for each stage and the entire game. The arbitrator also fills out the form "Performer Evaluation Record" (Appendix 7).

At the final stage of the game, the director of the motor transport enterprise evaluates the participants according to a five-point system. These ratings are logged and factored into the current rating.

After all parallel groups have played, the results are analyzed, summarized, the best subgroups are awarded, and the best decision is analyzed (Appendix 8).

IV. Initial information.

As preliminary data, the topic of factors influencing the coefficient of technical preparation of cars at the motor transport enterprises is taken. On this topic, students rank the factors a priori and select the main ones.

These factors are listed in Appendix 1 and ranked a priori. 8 groups of experts participate in the ranking and determine the following:

- sum of numbers;
- exclusion of the sum of the sums;

$$\Delta = d - \sum d / n$$

here d- the sum of the factors;

$\sum d$ - the sum of the sum of the factors;

n- factors.

- with the help of the concordance coefficient, the level of agreement of experts' opinions is evaluated;

$$W = \frac{12S}{m^2(K^3 - K)}$$

here K- number of factors;

m- number of experts.

The concordance coefficient can vary from 0 to one. If it differs more than zero, then there is consensus among experts.

- the hypothesis that the agreement of experts is not sudden is evaluated using the Pearson criterion when the number of degrees of freedom is (k-1);

- the a priori diagram of the chins is seen, which shows the distribution of the factors in the order of the sum of the decreasing chins.

The advantage of a priori serialization is its simplicity, small volume of work, generality and speed. Disadvantages: subjectivity, influence of experts' qualifications on the final assessment, etc. In order to obtain objective information, it is necessary to compare the opinion of several expert groups and different schools.

V. Game process

I- preparation for the stage-game.

This stage includes solving the following organizational and methodological tasks:

- introducing students to the content, purpose and task of the game;
- active teaching methods for teachers and students in practical training; gives insights about business games and assigns homework to collect information about what factors affect the coefficient of technical preparation of cars;
- the correct distribution of personnel is again important, the teacher conducts sociometry to select the director of the ATK. Distribution of each game participant taking into account the quality not only creates an opportunity to increase the efficiency of the game, but also develops the tendency of each participant, this tendency appears when simulating the conditions close to the production

environment. Sociometry is a one-time sociological study to solve a complex sociological task. Sociometry is conducted by getting each student's answers to the questions in the questionnaire given in Appendix 9;

- the teacher conducts question-and-answer or control work, the purpose of which is to check the level of preparation of the students, to identify areas that he did not understand ("narrow areas") during the preparation and, if necessary, to explain them;

- the teacher gives the students an assignment to prepare for the business game, the questions necessary for preparation and the necessary literature to get answers to these questions;

- The director of ATK forms departments and appoints department heads;

- the teacher (or referee) gives the heads of departments the forms for calculation or instructions for drawing them. Each section fills out the form;

- the referee provides instructions and reference materials before the start of the game. Draws a sample form of recording the results of the game on the board, and writes the incentive or penalty points for each participant and the department (Appendix 7).

II stage. Development of measures to increase the coefficient of technical preparation of the automobile enterprise

The game administrator orders to change the state of production in the enterprise: For example, to increase the coefficient of technical preparation of the automobile enterprise, to increase the level of production base provision, to increase the capacity of ATK, to provide 3 different brands of cars in the automobile enterprise, and to mechanize the production processes. increase the level (one of the indicators is assigned to be changed).

Each department makes proposals to the head of the enterprise to achieve the level of the given indicator. In doing so, they justify their proposal in terms of providing the optimal option to achieve the goal and review the proposal of another department.

It is recommended to conduct the process of submitting proposals and choosing a solution using the "Brainstorming" method. Its content is that at the beginning, each player can put forward several ideas. The ideas put forward are not evaluated, only the number of ideas and the creative approach to the work are taken into account. A discussion of the solution options follows from a description of the method and solution algorithm, their identification, and a comparison of the solutions of the different options.

When discussing options, factors affecting the implementation of the solution are taken into account. Determining the factors and discussing them will bring students closer to understanding the problems that arise in the operation of the automobile company. Then the merits and demerits of the proposed proposals are discussed and the four best are chosen by general vote. Then the activities are ranked according to their importance. An algorithm for solving the task is developed for the primary event.

III stage. Calculation of the economic efficiency of the event

The appropriateness of the selected organizational technological event based on the previously submitted proposals is calculated on the basis of economic efficiency. The calculation results are compared with the level of production status requirements. In

cases where the set level cannot be reached, the next organizational and technical measure is developed and its economic efficiency is calculated.

IV stage. Formalization of the report

The result of calculations is included in the table. The numbers in the default option will remain in the same place in the table as the numbers when you recalculate the plan. This is necessary to compare the results of the two options. The report provides preliminary data and reference normative materials for calculation. Each department prepares the report separately. The head of ATK prepares a general report, in which the results of all departments are given. The head of ATK will give a brief report on increasing the technical training coefficient at the motor transport enterprise.

The report is given to the teacher for checking. The referee prepares a report on the evaluation of each participant of the game and hands it to the teacher.

V stage. Instructions to the participants of the game. Instructions to the administrator (teacher).

Remember, the teacher's speech should not have the character of observation. It should be as an orderer. The fact that the teacher discusses the problem equally with the students reduces their interest in participating in the discussion.

Remember, the business game is not a competition between two rivals. It is conducted with research, sharp words, necessary comparisons, humor and a little imagination. All this increases the interest of the game and thereby increases the mastery of the material.

Remember, the teacher should monitor the discussion of the participants and not let them go to "askiya" when solving any task. Any speech, conversation, discussion should be directed to the analysis of the problem, other limitations, questions should be aimed only at finding a solution to the problem.

Correct distribution of tasks and roles of the game leader. For this, conduct sociometry and evaluate the business and personal qualities of each participant. Rate yourself according to the distribution of people. You can make a conclusion based on the result of the game: if the game is active, you are a good leader, if the game does not go well, don't be upset, there are opportunities for you to get good results ahead.

Prepare forms for conducting sociometry (the number of forms should be equal to the number of students in the group). Familiarize students with the grading system and materials. Prepare forms for issuing grades. Distribute the forms of accounts to the heads of departments and the head of ATK and organize filling of these forms. Conduct sociometry in the group and form the ATK management apparatus. Divide all participants of the game into structural divisions. Distribute instructions to each constituent unit. Explain the meaning and purpose of the game, the method of conducting it. Carefully observe the progress of the game, evaluate the actions of its participants. Have the students mark their scores on the board and on the form. Keep the game progress active.

Arbitration instructions. Your task is to lead the game, to monitor the actions of all participants, their contribution to the organization's results, their completeness, initiative, ingenuity, diligence, ability to think, initiative, ability to set and solve tasks, be able to evaluate problem identification, correct incorrect suggestions and solutions. Your task is very responsible, your word is decisive. If you learn to fully objectively evaluate the actions of others, in which you act with disagreements with others, you can become the head of the company in the future. During the game, many of the tasks that

are set before you are often encountered in the enterprise. Today you will learn the efficiency of the enterprise in the game, and tomorrow in life.

In the process of preparing for the game, you need to study in depth many questions on improving the technical readiness of the automobile company. Focus your attention on the factors affecting the increase of the technical readiness ratio of the automobile enterprise.

Instructions to the head of ATK. You are the director of ATK. According to the results of the survey, you won. Your task is to increase the coefficient of technical preparation of the car factory. You are the head of the enterprise, so all responsibility for the result is on you. All the achievements of your enterprise are your achievements, miscalculations in its activities, your lack of foresight, your inability to plan, your inability to organize, your inability to manage and project, your inability to properly allocate and use people, i.e. it's because you can't activate and control their work. You must be the conductor leading the orchestra. It's up to you to upgrade (upgrade) the progress of the game.

VI stage. In the stage of preparation for the game:

1. Look for ways to increase the coefficient of technical preparation of the motor transport enterprise. Identify the main factors affecting the technical readiness ratio.
2. Write the task to be given to the units and solve this task even if it is general.
3. Try to connect the movement of structural units. For example, if TXK and the T region require an increase in the consumption of spare parts and materials, what will be the response of the supply of materials and equipment? If the technical control department pays great attention to the quality of service and repair, what will the MTT departments of TXK and T region answer?
4. Familiarize yourself with the tasks and job instructions of all structural units. Think, what task will I set before them?
5. Familiarize yourself with all normative materials, determine which norms can be amended or restricted.

During the game:

1. Explain the task to each structural unit.
2. Give an order to increase the technical training coefficient of the motor transport enterprise.
3. Hold a quick meeting with the department heads and set a specific task for each of them.
4. Watch the game progress. Quickly intervene when solving the task, speed up the movement of departments.
5. Arbitrate who you think should be encouraged and who should be penalized for offering the wrong solution or being passive.
6. Check that each component solves the task correctly. Find the solution to the task.
7. Evaluate the result of the activity of each structural unit.
8. Organize a discussion of solution results and methods.

Instructions to the head of the material and technical supply (MTT) department:

1. Familiarize yourself with the material and technical supply plan of the automobile company.
2. Define the task before you.
3. Determine how the supply of spare parts, materials, equipment and rolling stock of the automobile plant affects the technical readiness coefficient.
4. Determine measures to ensure the same brand of cars at the automobile plant.
5. Plan measures to increase the level of mechanization of production processes.
6. Evaluate the proposal of other structural units in terms of their implementation and impact on the technical readiness ratio.

Instructions to the head of the technical control department:

1. Get acquainted with the work of the technical control department of the automobile company.
2. Define the task before you?
3. Determine how the level of provision of the production base affects the coefficient of technical preparation.
4. Determine how the technical readiness coefficient of TXK and T quality affects the rolling stock.
5. Create a plan of activities for high-quality TXK and T for rolling stock at the motor transport enterprise.
6. Make suggestions to improve the quality of TXK and T.

Instructions to the head of the technical service department.

1. Familiarize yourself with the work plan of the technical service department.
2. Determine the task before you.
3. Determine the factors that affect the number of services, their labor capacity, TSC and T costs.
4. Submit proposals to TXK and T to reduce costs. Determine how much change in your technical and operational indicators will improve the performance of the plan for TXK and T. Submit requests to the operation department, TSC and repair regions to change the technical operational and other indicators for the plan for TSC and T.
5. Evaluate the proposal of other departments from the point of view of impact on the plan for TCK and T. Don't miss out on any deals that will make your plan worse on TXK and T.
6. Determine the cost of TXK and T for any option.

Instructions to the head of the TCK and T region.

1. Familiarize yourself with the plan of works performed in TXK and T region.
2. Determine the task before you.
3. Create a plan of activities to improve the quality of TSC and T for cars. Pay attention to the replacement and repair of equipment in the TXK and T region for cars. Raise the level of mechanization of production processes in TXK and T region. Make a plan for the transition to flow systems and specialized posts in maintenance and repair.

4. Create a plan of actions to reduce the time the rolling stock stays at TXK and T. Ensuring efficient use of common equipment. Establish procedures to reduce queue waits in rolling stock washing and diagnostic areas.

5. Submit proposals to the work plan of the material and equipment supply department in order to provide rolling stock with spare parts, fuel and lubricants and to raise the level of mechanization of production processes in the region.

Report

_____ technical training of the motor transport enterprise
(small group)

the importance of the event in increasing the coefficient

1- app

Event order number	The importance of the event		The squared deviation of the subgroup response from the true assessment of the importance of the event
	According to the small group assessment	Real	
1			
2			
3			
4			
everything			

Note: the subgroup fills only the second column of the table.

Deductions for incentives and fines for work performed in stages.

2- app

The main stages of the game			Encouragement for timely and correct work			Penalty for correct and late work		
Stage №	Audience time, min	Number of points	10 min	20 min	30 min	10 min	20 min	30 min
1	40	10	5	10	15	5	10	15
2	40	30	]10	]20	]30	-10	-20	-30
3	80	50	]30	]40	]50	-30	-40	-50

Penalty for errors in decision-making, accounting, and issuing documents

3- app

№	The nature of the error	Maximum penalty points
1	Taking the wrong solution	10-15
2	Not knowing the methodology	5-10
3	System error	5-8
4	Arithmetic error	5-10
5	Incorrect execution	3
6	For missing the mistakes of others	2-4

Penalty points for production violations

4- app

№	Disorders	Amount of points
1	He did not participate in the game without reason	50

2	Arriving late	5-7
3	Passivity, indifference to the game	5-7

The condition of additional incentives for the director of ATK

5- app

№	Promotion indicators	Sum of points for each stage
1	For organizing work on time and quality	5 to the score
2	For preparing a lecture on a certain stage and speaking at a production meeting	5 to the score
3	For maintaining order among the small group participants	10 to the score
4	For handling creative ideas	15 to the score

Incentives and fines in the assessment of organizational and technical measures to increase the coefficient of technical trainin

6- app

№	Types of work	Amount of points per event	
1	Interpretation of organizational technical measures		
	a) exact place and time of implementation		] 15
	b) the place and time of implementation were not clear enough		] 5
	c) events are not enough, place and time are not clear		0
	g) actions are unsatisfactory, unsuitable for implementation	-15	
2	Economic efficiency from the implementation of organizational technical measures.		
	a) with the use of specific initial data and standards		] 10
	b) without using approximate standards		] 5
	c) insufficiently justified		0
	g) error	- 10	

General indicators of the game:

Faculty _____
course _____
in the group _____

7- app

	to the director of ATK	To the department of material and technical supply	To the technical control department	To the technical service department	To TXK and JT region	Assessment, conclusion

I. stage						
II. stage						
III. stage						
IV. stage						

Report on the effectiveness of the proposed action

8- app

№	Event name	The percentage that can change	
		increase	increase
1	2	3	4
1.	ATK was provided with new rolling stock with high load carrying capacity.		
2.	The number of ATK car brands has been reduced.		
3.	The quality of fuel lubricants has improved.		
4.	A plan has been drawn up to carry out the maintenance work on cars according to a strict schedule.		
5.	Attention was paid to the quality and consumption of spare parts and aggregates.		
6.	The basis for the production of ATK has been increased		
7.	The quality of TXK and T has been increased		
8.	Technical re-equipment of TXK and T region		
9.	It is planned to encourage workers in TXK and T region for improving quality		
10.	Control over the departure and return of vehicles has been strengthened		
11.	A centralized production management system was introduced		
12.	A diagnostic complex was launched to determine the technical condition of the rolling stock		
13.	New technology was introduced to the rolling stock TXK and T		
14.	The periodicity of vehicle inspection has been extended		

5-Experimental work

Topic: technical and technological documents and documentation at ATK

I. Purpose of work: To acquaint students with the forms of documents and assignments used in the planning, accounting and execution of maintenance and repair work of motor vehicles at motor transport enterprises, and to acquire skills in using documents in them.

II. General information

Currently, ATCs work with the form of documents and the procedure for their use, approved by the State Joint-Stock Corporation of Road Transport of Uzbekistan, used in the planning, accounting and execution of transport and transportation works.

III. The content of the work.

In this work, students will get acquainted with the form and composition of documents used in the TK and T for cars, study their structure, use, and behavior. Each student fills out several documents. In this work, the following documents are considered, which are widely used in TXK and T for cars:

1. TXK and T plan graph for vehicles. This plan serves to plan the 1st and 2nd MOTs for cars in ATK for 1 month and to take into account its actual implementation.
2. Report on the plan of the TCC for motor vehicles. The plan report determines the days when the cars will pass through the 1st and 2nd stages and takes into account their actual implementation.
3. Repair sheet. Takes into account the performance of 2-TXK and JT works for vehicles. The repair sheet is filled out by the mechanic on duty in the presence of the driver, and a list of vehicle details and malfunctions is recorded in it.
4. Controller's mechanical book, which records the departure and return of vehicles. Information about cars that have started work, are on a trip, parked without a driver, without fuel, without batteries, without tires, as well as parked in the 2-TXK, JT are recorded in the notebook.
5. Record sheet for repair and maintenance of vehicle units. The leaflet provides information about the malfunctions of car units and their causes.
6. Certificate on the technical condition of the unit. The report contains the positions and names of the board members and their conclusion about the technical condition of the unit.

IV. Place of work.

Advanced motor transport enterprises in the city of Namangan

V. Order of work

Students learn by taking copies of the sample documents used in the ATK. They fill out 3-4 documents according to the teacher's assignment.

When preparing documents, students should know the following:

1. Who will fill out the document first and where will it be sent?
2. What the document is about.
3. What terms are used (permanent, monthly, daily).
4. By whom and what information is included in the document.
5. Where will the documents be submitted after the work is completed.

on "Technical-technological documents and documentation at ATK".

Report.

A student: _____ group _____

Leader _____

The place where it was held _____

Date (day, month, year) _____

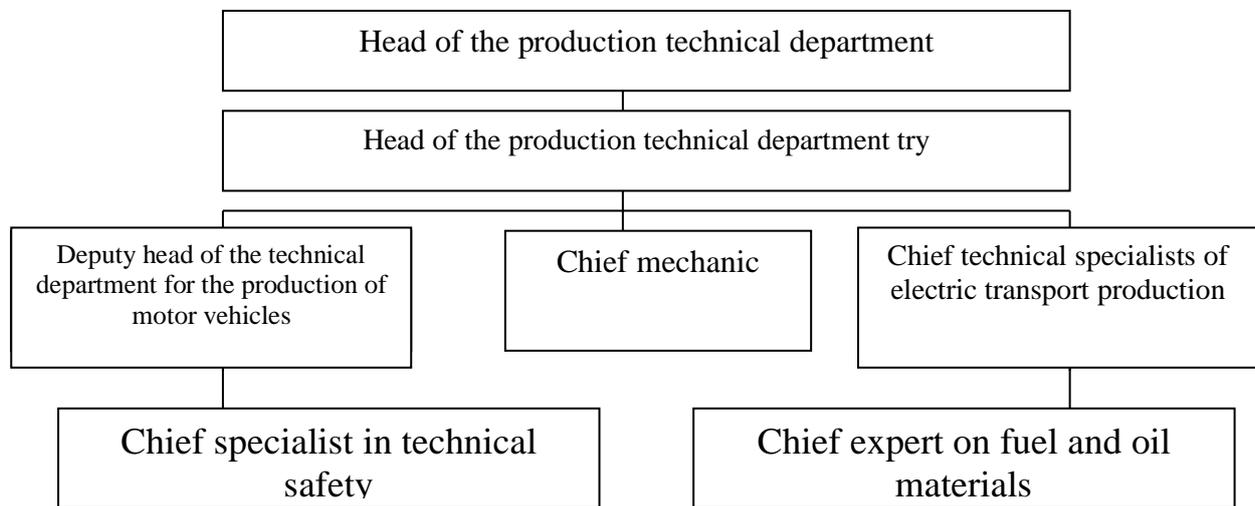
6-Experimental work

Topic: Studying the work of the technical department of production in motor transport enterprises

1. Purpose of work:

To study the composition of the technical department, its tasks, the work it performs, and the documents it uses.

The technical department prepares events and plans for the implementation of the production process of new equipment and technology, the scientific organization of the cocktail; implements and monitors their implementation; develops and implements measures on cocktail protection and equipment safety; investigates the cause of injuries to employees and takes measures to prevent them; conducts technical trainings on personnel training, technical training of worker and engineer technical service personnel; organizes inventiveness, rationalization work at ATK and applies rationalization proposals to production; creates technical norms and manuals, creates a structure of non-standard equipment, devices, equipment.



Picture. 6.1. Union (association, corporation) production technical service principle image of the composition.

Students get acquainted with the composition of the technical service at the automobile enterprise, the plan of the department, the technical and technological documents used in the department and their filling, the structure and use of the technical tools available in the department (table 6.1 is filled in).

6. 1. table

List of documents filled out by technical staff

Serial number	Name of documents	The position of a document filling employee
1.	TS-1 transfer schedule (monthly, yearly)	
2.	TS-2 transfer schedule (monthly, yearly)	
3.	A report on the existence and movement of working capital of aggregates according to ATK	
4.	Notification of the mechanic on duty about the	

	cars in ATK and their technical condition	
5.	Certificate of acceptance and delivery of cars	
6.	Report on the implementation of the plan for the delivery of ferrous and non-ferrous metals in ATK	
7.	Card for recording the work of accumulator batteries	
8.	Car tire service record card	
9.	A personal card of content in motion	

4. Filling out the sample documents used by the technical staff.

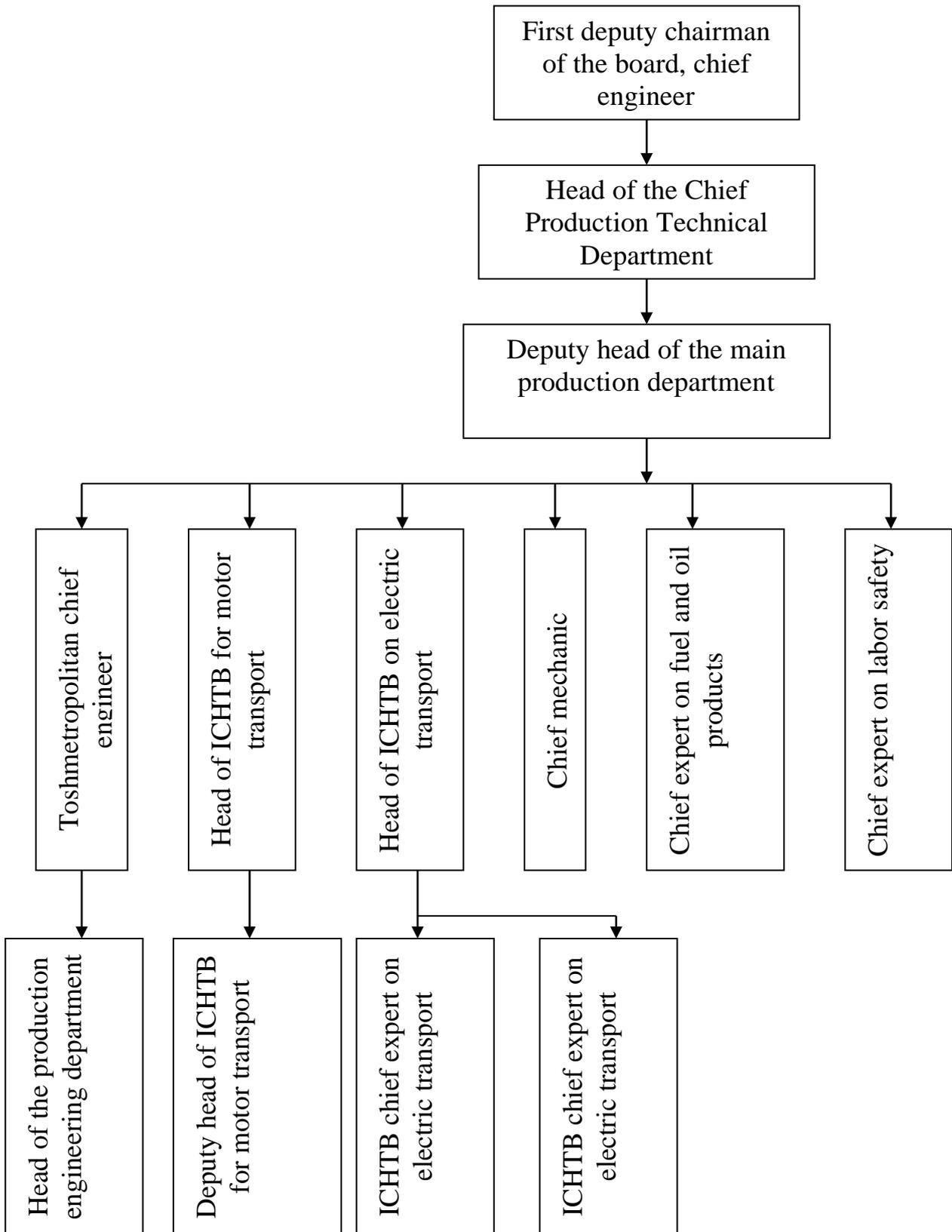
2. The content of the work

In the technical department, non-standard equipment, devices, and equipment are designed. Technical norms and guidelines are drawn up; technical training, equipment safety and labor safety events are conducted and developed to improve employee qualifications and staff training, study the cause of injuries in production and take measures to eliminate them, select technological equipment, in production planned solutions for the reconstruction of the technical base will be developed.

3. WORK PROCEDURE

Students get acquainted with the composition of the technical service at the automobile enterprise, the plan of the department, the technical and technological documents used in the department and their filling, the structure and use of the technical tools available in the department.

Management scheme of the technical system of "Toshshahartrankhizmat" Association



"Organization of the work of the technical department of production in motor transport enterprises".

Report.

A student: _____ group _____

Leader _____

The place where it was held _____

Date (day, month, year) _____

1. Purpose of work _____
2. Principle image of the composition of the production technical department at the motor transport enterprise.
3. List the composition and duties of the employees of the production technical department.
4. List of documents filled out by ATK technical staff:
Filling out the sample documents used by the technical staff.

7-Experimental work

Topic: Studying the methods of managing the T&C and JT process for vehicles at the automobile company

1. Purpose of work:

It is to get acquainted with the methods of organizing the production process of TCK and JT in ATK and ATB, the organizational structure, advantages and disadvantages of each method, and the factors affecting the choice of method.

2. The content of the work

- 2.1. Acquaintance with methods of organization of TXK and JT production process in ATK and ATB.
- 2.2. Getting to know the structure of organizing the TXK and JT production process in specialized and complex brigade, aggregate workshop styles.
- 2.3. To study the organization methods, advantages and disadvantages of TXK and JT production process.
- 2.4. To study the methods available in our Republic and in the developed countries of the road transport sector for organizing the production process of TTK and JT.
- 2.5. Learning to determine the advantage of using modern progressive methods of organizing the production process of TCK and JT in practice.

3. General information

In automobile enterprises, the following methods are used to organize the production process of TXK and JT for motor vehicles:

- specialized brigades;
- complex brigades;
- aggregate plots;
- brigades with workshops;
- regional and x. k.

The first three of these styles are more common in automobile companies.

A. The style of specialized brigades

According to this method, each TXK and JT work is performed by specialized brigade workers. It is necessary for the repair of KKK, 1-TX, 2-TX and aggregates. The structure of ATK engineering-technical service (MTX) when organized in the style of specialized brigades for the construction and maintenance work is presented in Fig. 1. The advantages of this method are as follows: the technological uniformity of work is

ensured in every region, the productivity of the production can be increased due to the introduction of new equipment and technology. One of the main disadvantages of the method of specialized brigades is insufficient personal responsibility of the workers for the work performed.

B. The style of complex brigades

The meaning of this method is that each division in ATK will have its own complex brigade workers, for example, autosaf TXK and JT. The repair work of KPC and aggregates is performed in a centralized manner. A complex brigade consists of workers of various professions to perform the type of work assigned to it. The composition of the ATK MTX, when TXK and JT works are organized in the style of complex brigades, is presented in Figure 2.

One of the advantages of the method of complex brigades is the personal responsibility of the workers at the brigade level for the quality of the work performed on TCK and JT. The disadvantages of this method are similar to the disadvantages of a specialized brigade: there may be disagreements among the brigades on the issues of effective use of commonly used technological lifting and transportation equipment, waiting for a turn in the execution of inspection and diagnostic work.

V. Aggregate - workshop style

In accordance with this method, the tasks of TCK and T in mobile vehicles in ATK are distributed among the brigades. Each brigade is assigned responsibility for maintenance and repair of one or more aggregates.

One of the disadvantages of this method is that it becomes difficult to centralize production, quickly manage it, and collect various information on vehicles, material and labor resources.

At present, modern progressive methods of organizing the production process are used in ATK ATB, technical service stations, and company-style technical service enterprises of our Republic.

4. Order of work

4.1. The purpose of the work: the methods of organizing the TXK and JT process will be introduced.

4.2. The methods available in certain car companies will be introduced.

4.3. The organizational structure of the current method is studied, analyzed and conclusions are drawn.

4.4. In the conditions of each enterprise, the recommendation of the methods of organizing existing and new production, which are acceptable according to the student's opinion, is presented.

On the study of the methods of controlling the TXK and JT process for vehicles at the automobile enterprise

Report.

A student: _____ group _____

Leader _____

The place where it was held _____

Date (day, month, year) _____

1. Purpose of work _____
2. Methods of organization of the TXK and JT process in a specific ATK and their advantages and disadvantages:
3. Give a drawing of the structure of the organization of the TXK and JT process and the management structure of the engineering-technical service in a specific ATK.
4. Give an analysis of the impact of the composition of the engineering and technical service available at automobile enterprises on the organization of maintenance and repair work, and on the economic connection.

8-Experimental work

Topic: Learning to manage technical systems in vehicle service enterprises

1. Purpose of work:

The students were introduced to the distribution of maintenance work performed between the bus sheds and the service center in the conditions of the "Namangan auto-tech service" service center, and the structure of the technical system and the form of its management in the "Isuzi tech service" service enterprises; introduction to technical tools and documents used in management.

2. The content of the work

The structure and form of management of student technical systems in the service center "Isuzi Tech Serviz" and "Namangan Avtotechkhizmat" car service enterprises (Figures 8.1 and 8.2), the distribution of service work between the car enterprise and the service center (Table 8.1), technical information service, camp services, tasks of shift foremen and engineers and the technical documents filled by them are introduced, and some documents are filled by students.

Distribution of maintenance works between the "Namangan Auto-Technology" service center and bus sheds

8.1-table

№	Name of works	Work volume, %	
		Service center	Bus palace
1	2	3	4
1	Daily service	-	100
2	1-TCK	100	-
3	2-TCK	100	-
4	Diagnostic work:	10	90
		100	-
5	- general	40	60
6	- deepened	100	-
7	Fastening-adjustment and replacement works	90	10
8	Repair of aggregates	100	-
9	Replacement of aggregates	70	30
10	Supply system	-	100
		100	-
11	Electrical equipment	100	-

12	Accumulator works:	100	-
13	- service	60	40
14	- repair	100	-
15	Mechanical works	60	40
16	Copper works	80	20
17	Tin works	90	10
18	Iron works	90	10
19	Welding work	90	10
20	Reinforcement works	85	15
21	Plumbing works	-	100
22	Carpentry works	100	-

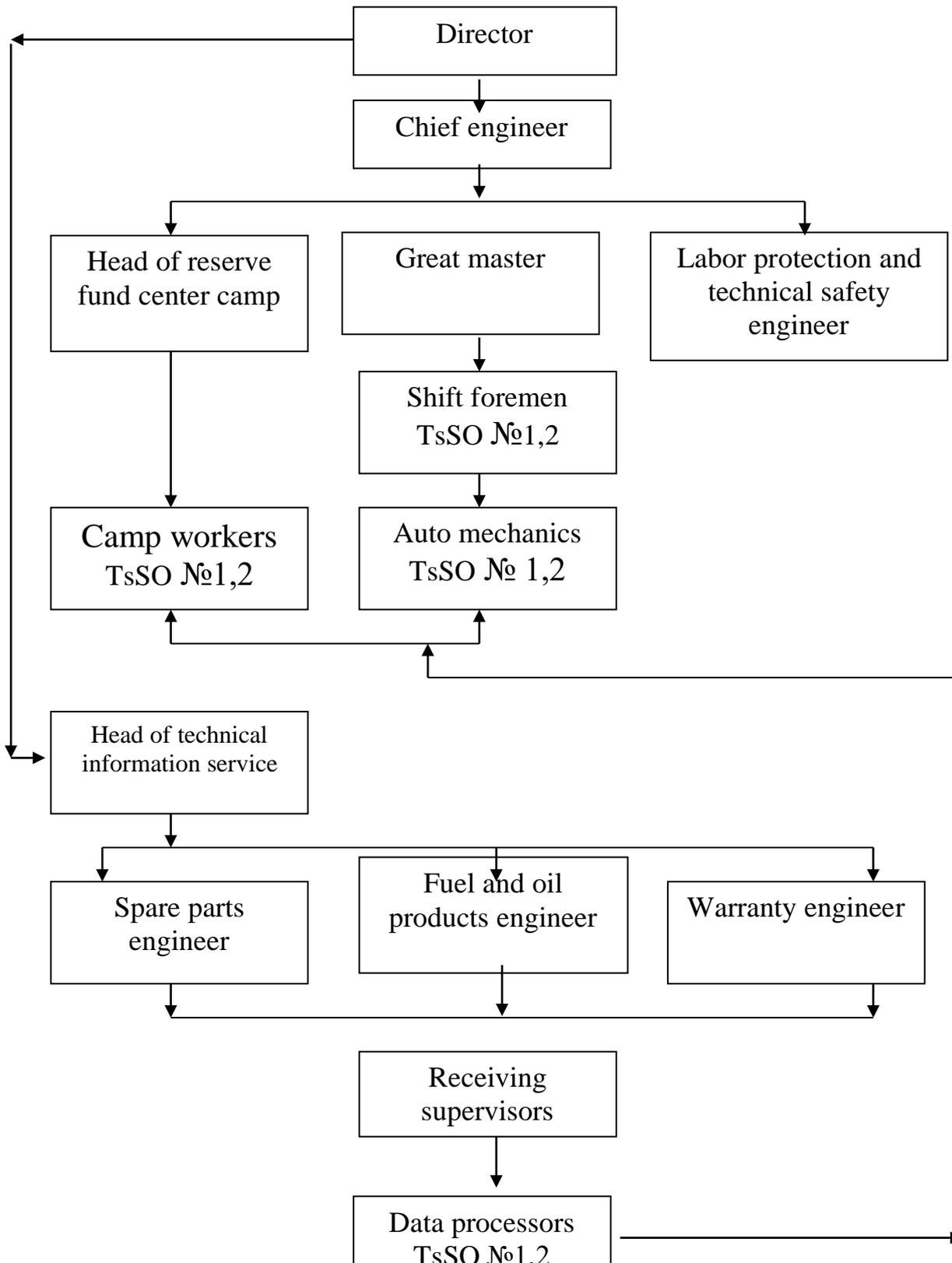


Figure 8.1. Structure and management of technical systems in the service center "Namangan Autotechkhizmat".

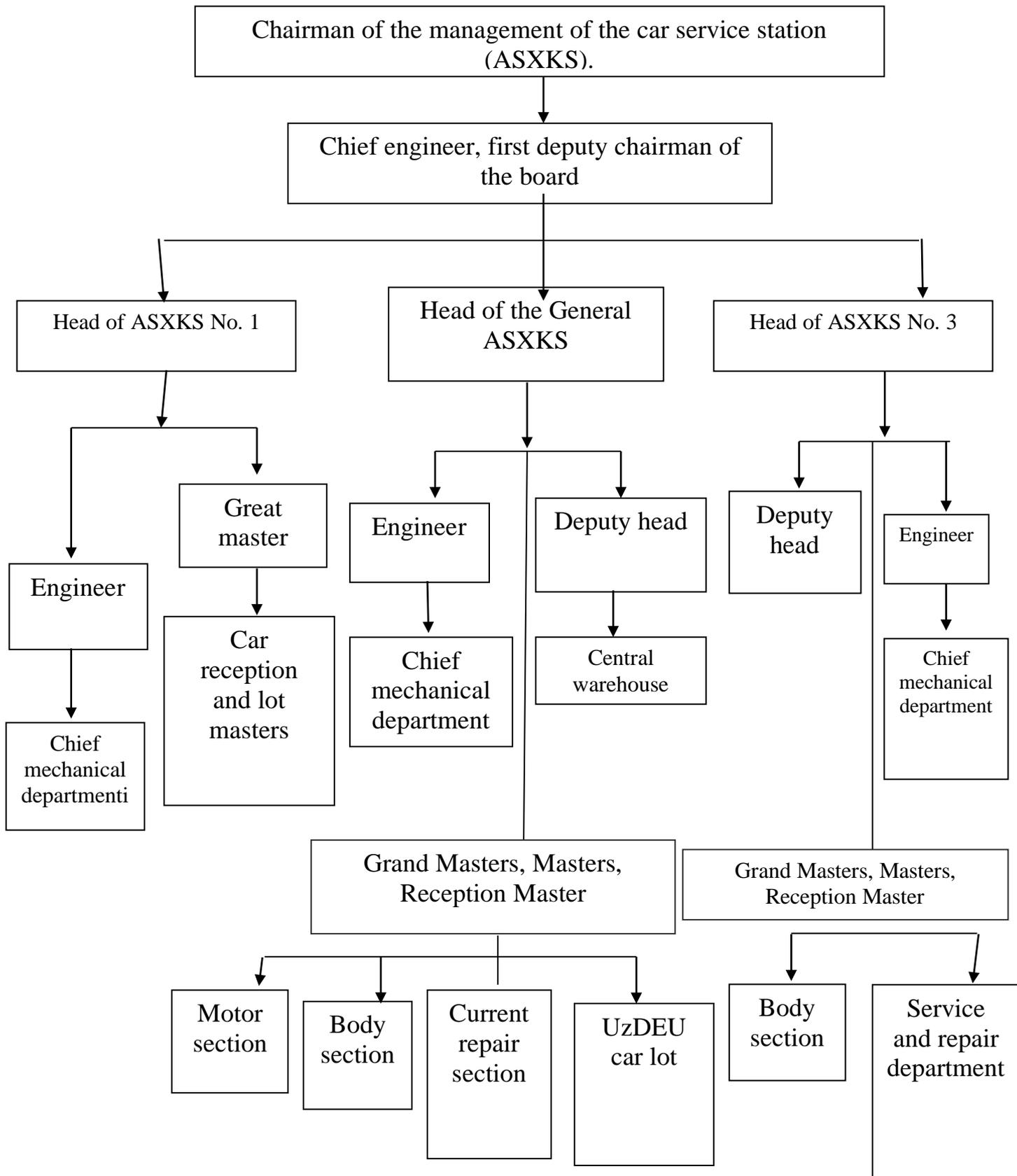


Figure 8.2. - The management structure of the enterprises of "Namangan autotechkhizmat" joint stock company

In the course of the experimental work, the students explain the technical systems management schemes, work organization methods, copies of the technical documents

used, and the methods of filling them in the service center "Namangan autotechxizmat" and "UzDEU" car service companies in the city of Namangan.

Learning to manage technical systems in vehicle service enterprises

1. Purpose of work:
2. Place of work: "Namangan auto-service" service center and car service enterprise
3. Fill in the distribution of maintenance works for buses between bus depots and service centers (table 8.1):
4. Provide a technical system management scheme at the "Namangan Auto-Technology" service center:
5. Provide a technical systems management scheme at the service company "UzDEU":
6. Samples of documents to be filled out by employees of the technical system of the service center and service enterprise should be given and some of them should be filled in:

List of used textbooks and training manuals

1. G'ulomov S.S. Menejment asoslari. -Toshkent, 1998 y.
2. Kuznetsov Ye.S. U'ravlenie texnicheskimi sistemami. -M: MADI, 2003 g. – 247 s.
3. Texnicheskaya eks'luatatsiya avtomobiley. Uchebnik dlya VUZov. 'od red. Ye.S. Kuznetsova. - M.: Trans'ort, 2004 g. – 535 s.
4. Kleyner B.S., Tarasov V.V. Texnicheskoe obslujivanie i remont avtomobiley. Organizatsiya i u'ravlenie. -M.: Trans'ort, 1986, - 239 s.
5. Avtomobillar texnik eks'luatatsiyasi. Oliy o'quv yurtlari talabalari uchun darslik. professor K.M.Sidiknazarov umumiy taxriri ostida tarjima qilindi. –Toshkent: «VORIS-NASHRIYOT», 2006 yil. -630 bet.
6. Kuznetsov Ye.S. Upravlenie texnicheskoy eks'luatatsiey avtomobiley. – M.: Trans'ort, 1990 g. – 224 s.
7. Avtomobillar texnik eks'luatatsiyasi. Oliy o'quv yurtlari talabalari uchun darslik. 'rofessor K.M.Sidiknazarov umumiy taxriri ostida. –Toshkent: «VORIS-NASHRIYOT», 2008 yil. -535 bet.

III. BANK OF CASES

Cases on innovative management in education

In the national personnel training program of the Republic of Uzbekistan, special attention is paid to the training of competent specialists in the quality stage of its implementation. Development of the ability of independent creative thinking of personnel in market economic conditions is one of the main quality indicators of education.

The use of cases, which is effectively used on a large scale in world pedagogy, firstly develops the thinking ability of students, and secondly, directly connects the educational process with production. As Herbert Spencer said: "The great goal of education is not to impart knowledge, but to teach behavior." Or, in most cases, in the existing education system, the goal of teaching is to provide knowledge to students as the final result, and on a global scale, it should be recognized that the practical application of the acquired knowledge is considered the final result of education. It is a proof of our opinion that graduate students studying financial management at Harvard (USA) University have the right to receive a diploma only after solving 2,500 cases that can happen in banks during their studies.

A case is a detail of a specific problem situation that occurs in production. Depending on their content, cases are divided into microcases, minicases and general cases, tactical and strategic cases according to their purpose. In addition to this, classic (Harvard) cases, types of cases whose content is slightly deviated from real information and significantly deviated from real information. there is.

The use of cases in the educational process forms the following necessary qualities in students:

- develops the ability of critical thinking;
- teaches to be honest (objective);
- forms an integral connection between theory and practice;
- helps to form a new problematic situation;
- when solving situations, it allows to take into account the presence of factors affecting it and their impact;
- forms the ability to accept the opinion of others;
- teaches the culture of asking questions;
- educates a sense of responsibility for the decision made;

The following methods can be used when using cases: individual presentation, microgroup presentation, discussion in microgroups and then in a general group, role-playing games, it is necessary to pay attention to the following when solving cases;

- identifying the main problem;
- to determine the factors affecting the main problem;
- distinguishing primary and secondary factors;
- consider an alternative solution to the problem;
- making the most acceptable (optimal) decision;

When solving cases, analyzing it in a written way helps to understand the problem described in it more deeply, or a written speech is considered one of the most effective ways to develop critical (independent, creative) thinking skills in the international RWST program.

Microcase-1

During the initial orientation, he gave group and individual tasks to the students. He left it up to the students to make a plan for doing this work.

Questions:

1. Was it done right?
2. What are the didactic features of this method?
3. What will be the result of making a plan for the completion of assignments by the students themselves?

Microcase -2

The meeting is going on. A speaker was answering in front of the tribune. He allowed some inaccuracies. When the listeners asked: "Who will answer fully?", everyone sat silently. Then one of the listeners suddenly said: "I will answer." At that moment, a wonderful situation happened in the group: "Shut up quickly. Do you want to break the speaker?" started whispering from around. He fell silent. He stubbornly did not answer when asked.

Questions:

1. Do it in terms of the relationship between the audience and the audience and the leader.
2. Give examples from your work of influencing the mastery of the relationship between the listeners and between them and the leader.

Microcase -3

Enterprise leader. Before the discussion of "Transformer structure and principle of operation", a stand was prepared on which working transformers were fixed. He distributed unusable transformers to the employees for assembly and disassembly. The purpose of this is to describe the structure of the transformer, the principle of operation and its application. After that, the employees connect the transformer on the stand to the network and determine the decrease or increase in voltage and record the readings.

Questions:

1. For what purpose it was done.
2. Why did you put it in this particular type?
3. What method of explanation did you use?

Microcase -4

On one production day, several employees left for lunch earlier than others. After lunch, the head of the department forced him to apologize in front of the brigade members.

Questions:

1. In your opinion, under what conditions can this method of the head of the department be effective?
2. What are the reasons why employees may have left earlier?
3. What would you do in such a situation?

VI. SUBJECTS OF INDEPENDENT STUDY

The independent education of the student on "Management of technical systems" is a component of the learning process of this subject and is fully provided with methodological and informational resources.

Students listen to professors' lectures, solve examples and problems during classroom sessions. Outside the auditorium, the student prepares for classes, summarizes literature, solves examples and problems given as homework. In addition, in order to study some topics more widely, he prepares abstracts by reading additional literature and solves tests on the topic. The results of independent education are evaluated based on the rating system.

Completing tasks at home, independently learning new knowledge from additional textbooks and literature, searching for the necessary information and determining ways to find it, collecting information using the Internet and conducting scientific research, within the scientific circle or independently preparing scientific articles and lectures using scientific sources deepens the knowledge of students, develops their independent thinking and creative abilities. That is why educational activities cannot be effective without independent education.

Checking and evaluating homework by the teacher conducting the practical training, the level of mastery of the abstracts and the topic

inspection and evaluation is carried out by the teacher conducting the lecture classes in each lesson.

The independent body of work from the subject "Management of technical systems" covers all subjects of the subject and is formed in the form of the following 19 major subjects.

Content and scope of independent education of students

1. Modern contents, functions, principle images of motor transport enterprises
2. Modern contents, functions, principle images of technical service stations.
3. Organizational structure of technical service (TXK-1, TXK-2) regions, organization of work, used equipment.
4. Organizational structure of current repair regions, organization of work, used equipment.
5. Structure, functions, and equipment of production workshops.
6. Methods of organizing maintenance and repair works.
7. Contents of the management system at ATK
8. Composition and tasks of ATK departments
9. Centralized management system of ATK technical service
10. Composition, tasks and organizational structure of the engineering-technical service of ATK.
11. Use of business games in production analysis
12. A stratification method of decision making
13. Types of information, sources, methods of collection
14. Delphi method of decision making.
15. Documents used in ATK.
16. Modern ATK management content.
17. ATK employees, composition, duties.
18. Training and evaluation of employees.
19. Business characteristics of bachelors.

V. GLOSSARY

Program - it is a complex of activities completed in time and space that ensures the achievement of the set goal.

Program effectiveness means to minimize the total resources spent in fixed periods or to minimize the time periods for meeting the needs of society with specified resources to a certain level.

System means a set of elements that interact and form a certain unity.

As management the existing law refers to the system of influence on the object based on the rules and regulations. Management can be likened to a conductor and an orchestra.

Management - this is the principles, methods, means and forms of enterprise management in order to increase production management, production efficiency and its usefulness

The composition of the management system means the composition of the units that manage internal divisions and their mutual subordination.

Engineering technical service the organizational-production structure is understood as an ordered set of production departments that determine their number, size, function, interaction and cooperation methods and forms.

Aggregate workshop method the main essence is that technical maintenance and repair work for ATK vehicles is distributed among production workshops, and each workshop is assigned the responsibility of performing full maintenance and repair of one or more aggregates.

Centralized production – communication, automobile, telemechanics and computing equipment are used in the accelerated management system. At the first stage, the system can actively work with the dispersal communication and organizational tools.

Probability – describes the state of objects and provides an understanding of the average values of indicators.

Individual - describes the state or indicator of a concrete object.

In the probability method - For statistical evaluation, the data collected as a result of observations are processed using mathematical methods and a decision is made.

Ministry - it is the most family link of management in the economic system of the network to which it belongs.

State committees - these are the central network administrative bodies designed to lead the activities of socio-economic development by regulating, controlling and coordinating the activities of ministries and agencies.

Concern - it is a large, multi-sectoral corporation formed on the basis of diversification (change, increase in variety) of production. It includes enterprises belonging to various sectors (industry, transport, trade, banking) on a voluntary basis.

Association - it is a voluntary public association of individuals and legal entities.

Association - it is a voluntary association of enterprises based on shares. It is formed as a result of the merger of enterprises on a contractual basis in order to jointly implement one or more production-economic tasks. The association usually includes enterprises located in a certain area and specializing in a similar profession.

Corporation - It is an amalgamation of large joint-stock companies and trusts.

Consortium - it is a temporary association established for the purpose of implementation of specific tasks: large-scale targeted programs and projects, including scientific-technical, construction, nature protection and other programs.

Holding company - it is primarily a financial fund that unites investments, not enterprises. Joint stock companies that are part of the holding company will have a "control package of shares" at the disposal of the company.

National company - it is a voluntary association of non-production industries, creative communities, transport, communication and telecommunication enterprises and organizations, established on the basis of share or shareholding.

Enterprise - it is the main and primary link in any economic system. According to the Enterprise Law, an enterprise is an economic entity with the rights of a legal entity, which produces, sells or exchanges products, performs work on the basis of the use of property owned or wholly owned by the enterprise. , provides services.

Company - in contrast to this enterprise, it means various business activities in the production and non-production sectors.

Automobile association - The purpose of the organization is to gather transports of different ownership into one enterprise and ensure their operation in a certain direction in cargo and passenger transportation.

Engineer-technologist (master-receiver) is a person responsible for working with customers.

A priori annoyance. This is a very simple method, based on expert evaluation of factors by a group of experts.

Service capacity - this refers to the number of posts where cars are serviced at the same time.

Standardization - One of the important elements of the product quality management system is standardization.

Reversibility - identifies objects that use the same substance, processes, relations, have a common content - return in time, or circle in space;

Variation - creation of an effective multiple view of standard elements - creation of an effective minimum variety of views included in the object of standardization of standard elements;

Systematic - determines the standard as an element and the organization of the standard system, the internal content of which the specific object of standardization is interconnected;

Interchangeability - replacement of details of the same type at different points of the space and at different times according to the application of the technique.

Delphi method - it is an integrative method based on the critical analysis of each expert's opinion by other experts

Games methods - One of the ways to make decisions in the context of information scarcity is the analysis of market production or other situations using game theory and statistical decisions.

Simulation modeling - it means the process of constructing a model of a real system and carrying out experiments in order to understand or determine the state of the system in this model.

Master- matured in all respects, have a fundamental scientific base, the methodology of scientific creativity, know modern information technologies, know how

to obtain, work and store scientific information, should be ready for scientific-research, scientific-practical and scientific-pedagogical activities.

Engineering technician service employees from managers; from experts; It consists of entrepreneurs from mass professional personnel (working personnel) and managers of enterprises, organizations and firms that are assistants in transport work.

VI. LIST OF REFERENCES

1. Avtomobillarni texnik ekspluatatsiyasi. Qayta ishlangan va to'ldirilgan ruscha 4-nashridan (prof. Kuznetsov E.S. -M.: Nauka, 2004 y. 535 b) tarjima Siddiqnazarov Q.M. umumiy tahriri ostida. Toshken, "Vorisi" nashriyoti, 2006 yil, - 670 bet.
2. Avtomobillarni texnik ekspluatatsiyasi. O'R OO'MTV avtoTransport oliy o'quv yurtlari talabalari uchun darslik. prof.Siddiqnazarov Q.M. umumiy tahriri ostida) Toshkent, "Vorisi" nashriyoti, 2008 yil, - 560 bet
3. Avtotransport vositalari servisi: (Darslik) Mualliflar jamoasi: M.A.Ikramov va boshq: M.A.Ikramovning tahriri ostida; O'zR oliy va o'rta maxsus ta'lim vazirligi, Toshkent avtomobil-yo'llar instituti.-T: Alisher Navoiy nomidagi O'zbekiston Milliy kutubxonasi nashriyoti, 2010.-268 b.
4. Avtotransport vositalari servisi: oliy o'quv yurtlari talabalari uchun darslik. M.A.Ikramov va boshkalar; O'zR oliy va o'rta maxsus ta'lim vazirligi, Toshkent avtomobil-yo'llar instituti. -T: Alisher Navoiy nomidagi O'zbekiston Milliy kutubxonasi nashriyoti, 2011-192 b.
5. Kuznetsov E.S. Upravlenie texnicheskoy ekspluatatsiey avtomobiley.-M.: Transport, 1990 r.
6. Kuznetsov E.S. Upravlenie texnicheskimi sistemami. – M.: MADI, 2001r.
7. "O'zbekiston Respublikasi avtomobil Transporti xarakat tarkibiga texnik xizmat ko'rsatish va ta'mirlash to'g'risidagi Nizom" – Toshkent, 1999 y.
8. Valijonov R., Qobulov O. Menejment asoslari.- Toshkent. 1997-yil.
9. N. Maxmudov va boshqalar. O'zbek tilida ish yurutish. – Toshkent, 1990 y
10. G'ulomov S.S Menejment asoslari.- Toshkent. 1998-yil.
11. Buyuk va muqaddassan, mustaqil vatan. Ilmiy-ommabop risola. Toshkent, 2011 y.-198 b.
12. Borovskix Yu.I. va boshqalar. Avtomobillarning tuzilishi, texnik xizmat ko'rsatish va ta'mirlash.- Toshkent, Mehnat, 2001, -573 b.
13. Texnicheskaya ekspluatatsiya avtomobiley. Uchebnik dlya BUZov. Pop red.E.S. Kuznetsova.-M.: Nauka, 2004 r.
14. Avtomobillar servisi axborotnomalari. Siddiqnazarov Q.M.taxriri ostida "Vorisi-nashiryot"i. 2011y. -496y.