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ANNOTATION

This article explains the need for the research in the field of engineering terminology, the process of teaching it in foreign languages, the comparative application of engineering terms in different languages and studying the development trends. Objective of the article is to describe the methodology of teaching mechanical engineering terminology on the basis of study research in the field of mechanical engineering as a complex of heavy equipment in industry that produces household appliances, as well as consumer electronics and products of defense importance. Methods of the investigation that enabled to: study and analyze mechanical engineering terms; develop methodology of teaching mechanical engineering terms; analyze selection and assessment criteria of case studies; analyze selection and assessment criteria of project-based teaching; organize pedagogical experiments and analyze their results. It is an integral part to investigate the sphere of machine-building and metalworking industries, the production of metal products, metal structures and the repair of machinery and equipment. Furthermore, the issues of teaching engineering terminology in order to form professional foreign language competence in technical students by means of using new pedagogical technologies are of high significance. Such as, typology of terms in the field of mechanical engineering, teaching terminology whereby case studies and projects, examples of case studies and study projects are given. It is also important to pay attention to the etymology and the sources of the formation of terms, their

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МАШИНАСОЗЛИК СОҲАСИГА ОИД ТЕРМИНЛАРНИ ЎҚИТИШНИНГ АМАЛИЙ АСОСЛАРИ

АННОТАЦИЯ

Мақолада муҳандислик терминологияси соҳасидаги тадқиқотлар, унинг чет тилларда ўқитиш жараёни, турли техник атамаларни таққослаш усули ва ривожланиш тенденцияларини ўрганиш зарурлиги хақида сўз боради. Мақоланинг мақсади машинасозлик соҳасидаги тадқиқотлар асосида муҳандислик терминологиясини ўқитиш методикасини, шунингдек, маиший техника ва мудофаа қуролларини ишлаб чиқарадиган саноатнинг оғир ускуналари мажмуаси сифатида тасвирлашдир. Бунда: муҳандислик атамаларини ўрганиш ва таҳлил қилиш, машинасозлик терминологиясини ўқитиш методикасини ишлаб чиқиш, танлов мезонларини таҳлил қилиш ва амалий ишларни баҳолаш, лойиҳани ўрганишни баҳолаш, педагогик экспериментни ташкил этиш ва натижаларни таҳлил қилиш каби усуллардан фойдаланилади. Бу эса, ўз навбатида, машинасозлик ва металлга ишлов бериш саноати, металл буюмлар ишлаб чиқариш, металл конструкциялар ишлаб чиқариш, машинасозлик терминологиясини ўқитиш методикасини ишлаб чиқишда машина ва жиҳозларни таъмирлаш соҳаларини ўрганишнинг ажралмас қисмидир. Талабаларнинг касбий мутахассислиги доирасида чет тили компетенциясини шакллантириш учун муҳандислик терминологиясини ўқитиш масалалари катта аҳамиятга эга. Масалан, машинасозлик атамалари типологияси, ушбу терминологияни ўқитиш бўйича амалий тадқиқотлар ва илмий лойиҳалар доирасида

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peculiarities and definitions in special contexts as a complex human speech and language activity. Results and discussion. The article discloses the processes of activating terminology for obtaining information, through cognitive activity. Research works in the field of mechanical engineering, the practical basis of teaching terms and its effectiveness are also analyzed. The terms, vocabulary related to the field of mechanical engineering, case studies and analysis of independent work assignments are taken into account in the organization and conducting the trainings defined in the pedagogical experiment. As a result of experimental research, it was proved by mathematical statistical methods that the efficiency was achieved by 15% in case studies and 17% in educational projects. It was found that the mean value of the scores in the experimental group was 17% higher than in the control group. Hence, the research conducted has proven to be effective. Conclusions. The difficulties that arise in the process of comparing terminological activities show not only the specificity of individual languages, but also the specific role of terms in the national language system. Comparing the terminology of the English and Uzbek languages in the field of mechanical engineering not only allows to determine the general and specific features of the terms of mechanical engineering in the two languages, but also provides an in-depth study of both terminological systems.

Key words: metallurgical engineering, chemical engineering, power engineering, automotive, railway engineering, aircraft engineering, radio electronics, electronic computers, projects, pedagogical experiments, experimental results.

тренинглар ташкил этиш зарур. Шунингдек, инсоннинг мураккаб нутқи ва лингвистик фаолиятига оид махсус шароитларда атамаларнинг этимологияси ва шаклланиш манбаларига, уларнинг хусусиятлари ва таърифларига эътибор бериш муҳим. Мақолада когнитив фаолият орқали маълумот олиш учун терминологияни фаоллаштириш жараёнларининг очиб берилиши ҳам инобатга олинган. Шу билан бирга, машинасозлик соҳасидаги тадқиқот ишлари, ўқув шароитларининг амалий асослари ва унинг самарадорлиги таҳлил қилинган. Педагогик экспериментни ўтказишда белгиланган машғулотларни ташкил қилишда машинасозлик соҳасига оид атамалар, сўз бойлиги, амалий машғулотлар ва мустақил иш топшириқлари ҳисобга олинган. Экспериментал тадқиқотлар натижасида, математик статистика усуллари ёрдамида амалий тадқиқотлар кесимида самарадорлик 15%, ўқув лойиҳалар кесимида эса 17% га эришилганлиги исботланган. Экспериментал гуруҳдаги балларнинг ўртача қиймати назорат гуруҳига қараганда 17% юқори эканлиги аниқланган. Терминологик фаолиятни таққослаш жараёнида юзага келадиган қийинчиликлар нафақат алоҳида тилларнинг ўзига хослигини, балки миллий тил тизимидаги атамаларнинг алоҳида аҳамият касб этишини ҳам кўрсатади. Машинасозлик соҳасида инглиз ва ўзбек тиллари терминологиясини таққослаш нафақат икки тилда машинасозлик соҳасига оид терминларнинг умумий ва ўзига хос хусусиятларини аниқлашга имкон беради, балки ҳар икки терминологик тизимни ҳам чуқур ўрганиш учун имкон яратади.

Калит сўзлар: металлургия муҳандислиги, кимё муҳандислиги, энергетика, автомобилсозлик, темир йўл муҳандислиги, самолётсозлик, радиоэлектроника, электрон ҳисоблаш машиналари, лойиҳалар, педагогик тажрибалар, тажриба натижалари.

INTRODUCTION

The need for learning mechanical engineering terminology, its teaching in foreign languages, comparative application of specific terminology in different languages and learning developing tendencies has increased in the world. Investigations on transfering to ECTS credit system, creating conditions for students to choose a higher educational institution to continue their study abroad, supplying recognition of education period existing in a certain country by foreign country, learning syllabus of European higher educational institutions according to which organizing educational process improvement, developing students' ability fully and achieving high results in teaching have become an topical issue at present. Besides that, teaching by means of person-oriented concepts of self-education through the ideas of social education which is based on system-social projection, universal values, and based on the ideas of collective creative education, human-oriented, personal and cultural, synergetic approach and pedagogical phenomenology has become an important issue. In this regard, the development of communicative competence of specialists in the field of mechanical engineering explains the necessity of teaching terminology.

The main objective of the article: to give a practical justification for teaching terms related to the field of mechanical engineering.

Methods of investigation are:

– to study and analyze mechanical engineering terms;
–to develop methodology of teaching mechanical engineering terms;
– to analyze selection and assessment criteria of case studies;
– to analyze selection and assessment criteria of project based teaching;
– to organize pedagogical experiments and analyze their results.

Results and discussion. Research work in the field of mechanical engineering is focused on the followings:

–studying the mechanical engineering complex, determining the typology of terms related to the field;

– analyzing the features of term formation in the field of mechanical engineering;

–studying derivational peculiarities of mechanical engineering terms;

– using case studies and projects in the methodology of teaching mechanical engineering terms;

–determining the effectiveness of teaching based on educational cases and projects in the process of pedagogical experiments and analyzing their results.

The mechanical engineering complex is a set of heavy industries which produce tools for industries, as well as consumer goods and products of defense importance. It is also an integral part of the machinery and metal-working industries, manufacturing metal products and metal structures and the repair of machinery and equipment. Its main task is to provide all sectors of the economy with high-performance machinery and equipment which operate with high efficiency. Its activities are found not only within the industry, but also in other forms of production, such as intersectoral and interregional specialization and cooperation, especially, under the influence of the

process of specialization, the production of spare parts, units, components is carried out in different countries and regions, and the process of their assembly takes place in the territory of a particular developed country. A certain type of specialization (part (detail), technological or semi-finished product is usually selected, depending on the property of the product. The state of specialization and regional division of labor cause to the emergence of industrial centers and districts specialized in a particular field. The mechanical engineering complex consists of:

- metallurgical engineering, chemical engineering, power engineering;
- automotive, railway engineering, aircraft construction;
- radio electronics, electronic computers, electrical engineering;
- various branches of agricultural machinery, tractors.

Terms related to metallurgical engineering can be divided as follows: Centrifugal Casting, Sand Casting, Investment Casting (Lost Wax Casting), Continuous Casting, Net Shaped Centrifugal Casting, HPLT Casting, Vacuum Casting, Ingot (AOD Refining).

Terms related to chemical engineering can be divided as follows: absorption, adsorption, aeration, aerobic, aerosol, agglomeration, anaerobic, antibody, attrition, autocatalysis, azeotrope, batch, bilayers, biocatalysis, biochemical engineering, biodiesel, biofilm, biological engineering, biomolecule, biomolecular engineering, biomedical engineering, bioprocess, bioreactors, bioseparation, biotechnology, biotemplating, bubble columns, bubble, capsomere, carbon dioxide, catalysis, catalyst activation, catalyst deactivation, catalyst selectivity, catalyst support, cell biology, cell engineering, centrifugation, cfd, chaos, chemical analysis, chemical processes, chemical reactors, chromatography, coagulation, colloid, combustion, complexity, complex fluids, composites, computation, computational, chemistry, computational fluid dynamics, condensation, control, convection corrosion, crushing, crystallization, dem, desalination, design, desorption, dialysis, diffusion, discrete element modeling, dispersion, dissolution, distillation, dna, downstream processing, drop, drying, dust, dynamic simulation, economics, elasticity, electrochemistry, electrolysis, electronic materials, electro-osmosis, electrophoresis, emulsion, energy, entropy, environment, enzyme, evaporation, explosions, extraction, extrusion, fermentation, films, filtration, flotation, food, fluid mechanics, fluidization, foam, food processing, formulation, fouling, fractals, fuel, gases, gels, granulation, granular materials, greenhouse gas, heat conduction, heat transfer, homogenization, hydrate, hydrodynamics, imaging, instrumentation, interface, interfacial tension, interfacial rheology, ion exchange, isothermal, kinetics, laminar flow, leaching, mass transfer, materials, mathematical modelling, membranes, metabolism, microelectronics, microreactor, microfluidic, microstructure, mixing, model reduction, molding/moulding, molecular biology, molecular engineering, momentum transfer, monoclonal antibody, morphology, moving bed, multiphase flow, multiphase reactions, multiphase reactors, multiscale, nanomaterials, nanostructure, nanoparticle, nanotechnology, nmr, nonlinear dynamics, non-newtonian fluids, nucleation, numerical analysis, optimization, packed bed, parameter identification, particle, particle formation, particle processing, particulate

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processes, peptide, petroleum, pharmaceuticals, phase change, phase equilibria, photochemistry, piv, pneumatic conveying, pollution, polymers, polymer processing, polymerization, population balance, porous media, powder technology, powders, precipitation, process control, product design, process systems, product processing, protein, radiation, reaction engineering, remediation, renewable energy, rheology, safety, scale-up.

Terms related to power engineering can be divided as follows: Understanding Energy, Understanding Energy Sources, Understanding the Energy Grid, Understanding Energy Suppliers and Utilities, Understanding Energy Regulations, Understanding Energy Units, Understanding Energy Infrastructure, Understanding Energy Demand, Understanding Energy Markets, Understanding Energy Choice, Understanding Bills and Payments.

Automotive terms can be grouped as follows (See table 1):

Table 1.

Automotive terms

№	Terms	Definition
1.	active safety features	Refers to features that interact with, or are controlled by, the driver. For example, brakes, anti-lock braking system, manual seat belts, and traction control
2.	after market parts	Auto parts made by companies other than the original equipment manufacturer (OEM) and which are used for replacing or repairing autos. After market parts are generally less expensive than OEM parts. It's often alleged that such parts are inferior in quality compared to OEM parts
3.	air bag	It describes a gas-inflated cushion that deploys at the time of impact and is designed to protect a person's upper body from making direct contact with a vehicle's interior components such as the steering column or dashboard; rear-seat as well as side air bags are also becoming options
4.	air filtration system	System that cleans smog, pollen, exhaust, smoke and odors out of the air. Cleans both interior circulated air and that coming from the outside
5.	anti-lock brake system (ABS)	A braking system that is designed to preserve the driver's ability to steer a car during an emergency braking situation, unlike conventional brakes which lock and steering control is lost
6.	automatic safety features	Refers to features that are not under a driver's control; rather they act in response to programmed circumstances. For example, air bags and automatic seat harnesses
7.	automatic transmission	A transmission where the gears are shifted automatically by the vehicle and controlled by a torque converter. The torque converter replaces the clutch. It connects and disconnects the engine from the drive wheels while selecting the proper gears for the speed of the car. These transmissions come in three, four and five speeds. The more gears involved, the smoother the acceleration. With four- and five-speed transmissions, the highest gear is for overdrive. Overdrive reduces the revolutions per minute (RPM) and provides better gas mileage while on the highway

8.	Automotive Service Excellence (ASE)	Refers to the National Institute for Automotive Service Excellence. The institute is an independent organization that tests and certifies automotive technicians
9.	backfire/backfiring	When fuel that hasn't been burned seeps into the exhaust system and is ignited, causing a small explosion
10.	block	Short for engine block; see the definition of crankcase
11.	cam	Part of the mechanism that opens and closes the valves
12.	carburetor	The fuel system component that supplies the proper mixture of fuel and air to the engine. This part of the engine also adjusts the air and fuel mixture within an engine to meet different operating conditions (e.g., heat or altitude)
13.	car types	The basic types of automobiles marketed to the general public. See the definitions for convertibles, coupes, hatchbacks, minivans, pickups, sedans, sport, sport utility vehicles, wtation wagons
14.	catalytic converter	A part of an exhaust system that reduces harmful emissions caused by the engine. This device became a standard feature in 1975 as an anti-pollution measure
15.	chassis	Once this was simply defined as the frame of the car which provided the strength of the vehicle, and to which the body, engine, drive line components and suspension were attached. Now, few vehicles other than trucks have separate frames, and the chassis structure is incorporated into the body components in what is known as a shell or unit body construction
16.	convertible	Describes any car with a top that can be lowered or removed. Such tops may be moved either manually or automatically and, typically, are made of canvas with a plastic rear window
17.	coupe	A four-door passenger car with a separate trunk which is similar to a sedan but, instead of full-sized, the rear doors are cut (or in French, coupe) in order to allow a more stylish body
18.	crankcase	Engines consist of three major elements: the cylinders in which the pistons move; the cylinder head where the fuel/air combination enters, where combustion occurs, and where the burned gasses are vented off; and the crankcase which houses the crankshaft and usually the oil supply. The crankcase is usually the major (largest) part of the engine and is also referred to as the (engine) block
19.	crumple zones	The areas of the vehicle outside of the passenger compartment that are designed to absorb the impact during a collision
20.	cylinder	A chamber within an engine that contains a piston and valves. A fuel and air mixture in the cylinder is compressed by the piston and then ignited. This controlled explosion moves the piston, creating the basic force of the engine (power)

Terms related to railway engineering can be divided as follows:

Dark signa a block signal that is displaying no discernible aspect, often due to burned out lamps or local power failure. Most railroads require that a dark signal be treated as displaying its most restrictive aspect (e.g. stop and stay for an absolute

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signal);

Dark territory – a section of track without block signals;

Dead man's handle – a safety mechanism on a train controller that automatically applies the brake if the driver releases the handle. It is intended to stop a train if the driver is incapacitated. In some forms, this device may be pedal-actuated;

Decapod type – a steam locomotive with a 2-10-0 wheel arrangement;

Defect detector – a track side device used to detect various defects such as hotboxes (overheated axle bearings), dragging equipment, leaning cars, overloaded cars, overheight cars, seized (locked) wheels, etc.;

Degraded Operation – operation resulting from an unplanned event that prevents the normal delivery of train services;

Demurrage – a monetary charge levied by a railroad to a customer for excessive delay in loading or unloading cars;

Derail or derailer – a safety device that derails vehicles that pass it, typically to prevent rolling stock from accidentally entering the mainline from a siding;

Direct traffic control (DTC) – a system in which train dispatchers communicate directly with train crews via radio to authorize track occupancy in predefined blocks;

Distributed power – a practice employed to move large trains through the mountains. Consists of the locomotives on the head end, a "swing" (mid-train) helper or two, and pusher locomotive(s) on the rear; today, all units are remotely controlled by the engineer in the lead unit. The power distribution alleviates stress on the couplers and relieves the lead units of the full weight of the train, making it easier to move on grades.

Aircraft engineering terms can be classified as follows: Principles Of Aircraft Flight And Operation, Aerodynamics, Devices for aerodynamic control, Primary flight controls, Elevator, aileron, and rudder controls, Thrust controls, Propellers, Instrumentation, Flight simulators, Types Of Aircraft, Lighter-than-air, Heavier-than-air.

Terms of radio electronics can be divided as follows: radio beginnings, major radio applications, Satellites, Radar, Mobile communications.

Terms related to electronic computers can be divided as follows: computing device, computing machine, data processor, electronic computer, information processing system, interconnection analog computer, analogue computer, busbar, bus, cathode-ray tube, CRT, C.P.U., central processing unit, central processor, CPU, mainframe, proces sor microchip, microprocessor chip, silicon chip, chip, computer accessory, computer circuit, console, data converter, digital computer, disk cache, diskette, floppy, floppy disk, faceplate, computer hardware, hardware, home computer, keyboard, machine computer memory, computer storage, memory board, store, memory, storage module, monitoring device, monitor client, guest, node, number cruncher, slot, throughput, pari-mutuel machine, totalisator, totaliser, totalizator, totalizer, platform, plotter, computer peripheral, peripheral, peripheral device, predictor, scratchpad, server, host, expansion slot, Turing machine, VDU, visual display unit, calculator, estimator, figur er, reckoner, expert, adder, number cruncher, actuary, statistician, subtracter.

Electrical engineering terms can be classified as follows: ampere, analog, circuit, conduction, conductor, convection, current, digital, electrical energy, electrical engineering, electricity, electrolysis, electromagnet, electronic, energy.

Terms related to various branches of agricultural machinery, tractors can be classified as follows: Suspension fertilizer distributor, Twin-spinner distributor, Fluted rolled seed distributor, Rotary cutter, Deep-cultivating machine, Reclamation plow, Rear-mounted plow, Comb plucker, Seed pocket, Seeding machine, Multiple row seeder, Capillary watering, Clod segregator, Row-crop tractor, Two-plow tractor, Wide-gauge tractor.

Being one of the most important industries, Mechanical engineering is of great importance not only for industry but also for the whole country's economy. In addition, mechanical engineering determines the level of scientific and technological development, as it equips all spheres of life. Moreover, Mechanical engineering includes not only the production of automobiles, equipment and household goods, but also the repair and maintenance of machinery, metalworking. The role of engineering for the country is:

1. to provide all complexes in the country with equipment.
2. to develop all sectors of the economy which depend on mechanical engineering.
3. that all the achievements of scientific and technical progress are being implemented, ensuring the country's defense capability.
4. to provide country's defense capabilities.
5. being the largest complex in the country it accounts for 20% of industrial production, 1/3 of engineering employed in industry, more than 50 thousand engineering enterprises.

If we take a closer look, then we see that what a person uses is engineering products, knives, clothes, shoes, all of which are created because of the tools and machines used in production. Mechanical products are used in everything manufactured in factories:

- aircraft, helicopters, tanks, missiles, submachine guns and other weapons;
- buses, trams, subways and other vehicles;
- automobiles, excavators, bulldozers and other equipment, communications, mobile phones;
- satellites, equipment, orbits, etc [Prikhodko V., Sazonova Z., 2014; 6-12].

A machine is an artificial device created by human being to facilitate human labor and increase productivity, to perform the mental and physiological functions of production. The machines can be mainly divided into:

1. energy machines (steamers, internal combustion engines).
2. work machines, i.e. machine tools. The shape, condition or property of the raw material is changed in such machines.
3. information machines.
4. cybernetics machines [Zakharov B., 1987; 384].

To study special terms, it is necessary to determine the ways of term formation.

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Terminology can be interpreted as the study of collecting, defining, forming and presentation of lexical units, i.e. terms belonging to a particular field in one or more languages. According to H. Felber, the term "terminology" has three different meanings [Felber H., 1984; 34]:

1. Terminology is an interdisciplinary science, which studies terms, signs, etc. representing a specific concept.
2. Terminology is a set of terms which express a system of concepts related to a particular field;
3. Terminology is a promotion of the concepts of a specific field, expressed in terms.

Terminology is a separate aspect of linguistics, which deals with the study of certain laws related to the place of terms at the grammatical level and their use in the language. The peculiarities of the terminological system, its structural relations are clearly reflected in the models of word and word formation on the basis of linguistic factors. Word formation is one of the most productive ways of enriching vocabulary and its regular replenishing in linguistics. Commenting on the issues of terminology in the Uzbek language, Kh. Dadaboyev notes: "The development of Uzbek terminology by means of its own resources takes place in two ways:

a. using in the expression of new objects and concepts existing, ready words in the language;
b. creating new terms with the participation of word-formation opportunities of the Uzbek literary language" [Dadaboev Kh., Usmanova Sh., 2014; 119-120].

Based on the analysis carried out we can come to the following conclusion that modern terminology is:

1. a set of words and phrases used in the expression of concepts and objects of a particular field;
2. an independent branch of science that studies the set of words and phrases used in the expression of concepts and objects of a particular field;
3. a means of communication within the special sphere;
4. a distribution of the concepts of a specific field, expressed in terms [Kadirbekova D., 2017; 44].

A number of methods are used to express this or that concept in the Uzbek language as in any language. They are:

1. Enriching terms by means of semantic way.
2. Formation of terms by morphological way.
3. Formation of terms by syntactic way.

The semantic development of a word causes the appearance of a new word in the language and serves to enrich the terminology. Derivational suffixes are added to the root-stem when creating a term by the morphological way.

When we focus on different aspects of the term and the simple word, in fact, it is advisable to look at the views of researchers in the field on that sphere and solve the opposition of the term and the simple word on this basis. Researchers usually point out the following signs of terms:

1. the term has a monosemantic tendency;
2. the term has a clear, nominative function, which is not characterized by the functions of emotionality, expressiveness, modality. The term preserves this feature both in context and out of context;
3. the meaning of the term is equal to the notion;
4. the term is stylistically neutral;
5. terminological vocabulary is a separate system, etc [Shabardina S., 2002; 183].

To know meaning of the word additional work is carried out before translation as follows:

1. the ability to work on polysemantic character of a word;
2. the ability to distinguish synonymous words and their use in speech;
3. the ability to find the meaning of a word by knowing the antonym of the word;
4. the ability to write the meaning of a word in the absence of a clear translation;
5. the ability to understand a word based on word formation [Iriskulov M., 2009; 56].

Terms should be defined due to the use of affixes (See table 2):

Table 2.

The use of affixes

№	Affixes	The use of affixes
1.	**er**	**is used for the person who does an activity**
2.	**er/or**	**are also used for things which do something particular**
3.	or	**are also used for things which do something particular**
4.	tion/ ion	is used to make nouns from verbs
5.	ist	used for people's politics, beliefs and ideologies and sometimes their profession
6.	**ness**	**is used to make nouns from adjectives**
7.	**able / ible**	**with verbs, means "can be done"**
8.	ise	makes verbs from adjectives

It is necessary to analyze the formation of mechanical engineering terms by means of prefixes (See table 3):

Table 3.

Formation of mechanical engineering terms by means of prefixes

№	Prefixes	meaning
	anti	**against**
	auto	**of or by oneself**
	bi	**two, twice**
	ex	**out of**
		former
	mis	**badly/wrongly**

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	over	**too much**
	post	**after**
	pro	**in favour of**
	re	**again or back**
	sub	**under**
	under	**not enough**

The analysis of formation of mechanical enginerring terms by means of affixes and prefixes is given below (See table 4).

Table 4.

Formation of mechanical engineering terms by means of affixes and prefixes

№	Affixes	Mechanical engineering terms	Prefixes	Mechanical engineering terms
1.	**er**	compressor, cylinder, lever	anti	
2.	**er/or**	chamfer, idler, shoulder, filter, grinder	auto	automate
3.	or	governor, lubricator, an electrical insulator, convector	bi	bionic
4.	tion	automation, combustion, deformation, elongation, friction, motion	ex	
5.	ion	pinion	mis	
6.	ist		over	override
7.	**ness**	toughness, hardness, thickness	post	
8.	**able**	movable jaw, malleable	pro	
9.	**ible**		re	
10.	ise		sub	
11.	**ment**	measurement	under	undercut
12.	**ity**	elasticity, velocity, viscosity		
13.	**ship**			
14.	**ive**			
15.	**al**	material, mechanical		
16.	**ous**			
17.	**ful**			

Two-component terms: flow rate, internal combustion, mechanical engineering, kinetic energy, mechanical adвantage, electrical engineering, civil engineering, structural engineering, biomedical engineering, chemical engineering, software engineering, systems engineering, design information, technical requirements, detail drawing, preliminary drawing, working drawing, drawing board, linear dimensions, tape measure, surface area, dimensional accuracy, rounding error, performance gap, tight tolerance, loose tolerance, within tolerance, outside tolerance, reference point, chemical composition, chemical reaction, ferrous metals, precious metal, carbon steel, alloy steel, stainless steel, tool steel, high-speed steel, composite material, reinforcing

material, carbon fibre, natural polymer, synthetic polymer, epoxy resin, abrasive material, float glass, safety glass, toughened glass, laminated glass, fine aggregate, coarse aggregate, reinforced concrete, reinforcing bars, particle board, material properties, thermal properties, thermal insulator, tensile strength, compressiвye strength, scratch hardness, indentation hardness, fracture toughness, thermal conductiвity, flame-cutting, plasma cutting, laser cutting, machine tool, circular saw, band saw, power hacksaw, milling machine, cutting disk, abrasive wheyel, helical groove, through hole, blind hole, flat washer, spring washer, crosshead screw, machine screw, grub screw.

Three-component terms: first law of thermodynamics, second law of thermodynamics, zeroth law of thermodynamics, general arrangement drawing, cross-sectional area, non-ferrous metals, acrylonitrile butadiene styrene (ABS), concrete mix design, orientated strand board (OSB), compyuter aided design (CAD) / compyuter aided manufacturing (CAM), slot head screw, self-tapping screw, internal combustion engine, law of conserвation of energy.

Four-component terms: shielded metal arc welding (SMAW).

Etymology deals with the origin of words. It also studies meaning of derived, compound and borrowed words. Etymology takes the two-planes of words, i.e. form and meaning into account. Contemporary Mechanical engineering terms are borrowed from Latin, Greek, Arabic, Sanscrit, Japanese, Chinese, Persian, German, French, Swedish and other languages.

Etymology of modern mechanical terms looks as follows:

Greek: AUTO – (autos – itself) automates (self moving); amorphous (shapeless); amphibious (leading two different lives); aneroid (a – no, without, neros – water, i.e working without liquid); antixydants (oxys – nbitter); argon (argos – weak, passive); araiomenter (araios – dense, liquid and ....meter); astatism (actatos – inconstant); asphalt (mountain resin); barometr (baros – weight and ...meter); hydro (hydros – damp); hygroscopic (skopeo – observe); hydraulic (hydraulikos – water and aulos – pipe); diagnostic (diagnostikos – determining); diaphragm (diaphragma – obstacle); dynamo (dinamis – force); catalysis (katalysis – destroy); cybernetics (kybernetike – бошқариш санъати kybernao дан – рулни бошқараяпман); кило (chilioi – минг); кинематика (kinema (kinematos) – motion); oxygen (oxyz – bitter and gennao – create); macro (makros – big, long); manometer (manos – not dense and ... meter); mastics (mastiche – mastic wood resin); metriya (metreo - measure); etereology (metron – measurement and logike – subject); mechanization (mechane – tool, machine); micro...(micros – small); micron (mikron – small); optometer (optos – visible and ...meter); pycnometer (pyknos – dense and ...meter); pyrometer (pyr-fire and ...meter); plasticity (plastikos – soft, suitable for sculpture); pneumoautomatics (pneuma – blow, air).

French: autobus, auto (mobile); amortizator (amotir – loosen, weaken); amortization (amortir – loosen, weaken); ampere (A) (taken from the name A.M.Ampere (1775-1836)); balancer (to balance, vibrate); benzene (original source: Arabic lyuban javi – javan fragrant substance); bronze (from Italian bronzo);

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vaseline (German wasser – water and Greek elaion – olive oil); gabarit (outer border of subject, building or construction; garage (gerer – to put a hidden place); qaufrer (pressing curvs, decorations, ornaments); gramme (from Latin and Greek gramma – small measurement unit of mass); goudron; detail (description); disbalance, (from Latin dis… - prefix expressing destroy and French, balance – scales); doubling (to increase twice); nozzle (gicleur, gicler – inject); zigzag (broken line); injector (Latin injicia – put into); calibre; carburatter; code (Latin codex – a set, collection); cord (rope); coupling link (couler – channel); landau; Limosine, Limousin (ancient name of ancient French province); litre; logement (supporting construction for putting and fixing loads); longeron (longer – walk along); lunette maneuverer (to start); manchette; manipulator (Latin manipulus – palm, manus – hand); machine; metre (Greek metron – measurement); model (Italian modello, Latin. modulus – measure, pattern, norm); modernization (modern – new, contemporary); montage (to raise, fix, monter – to raise); pente doucer (decline); patron; plaque (cover).

Latin: automobile (auto...and mobilis – movable easily); autooperator (auto... and operor – work) aggregate (connect); adhaesion(claying); aguameter (agua – water and meter); accelerometer (fast and graph); algorithm (from the name Al Khorazmi); aluminium (bitter); vacuum (free place); acetum (vinegar); vibrator (vibrating); aiscosimeter (viscosus – join and meter); gradus (degree); dencemeter (dense and meter); decelerometer (de..., celero – making fast and meter); defectoscope (deficient and scope); deflector (inclining); deformation; diversification (different and do); dilatometer (dilato – widening and meter); differential (differentia – different); indicator (show, detect); instrument (tool); information; rozin (colophonia resina); qualitmeter (gualitas –quality or gualis and meter); quality; comparator; composition; compression, compressometer; convector; condensate; conditioner; conductor; conservation; constant; contact; corpus; mille (thousand); minimeter; motor; nigrol (niger – black and oleum – oil); omnibus (for all, common); optimal; position; reversion (turn)

German : alitieren, Al – aluminum; arretier(ung),(French arreter – to stop); bolt (fixing detail; walze; ventil; werkstatt; Herz; hulse; dampher; drillbohrer; duralyumin; senkerl; senkering; siekenmaschine; klappe; klemma; kluppe; kopierschablone; kreuzmeisel; kronsircul; kragstein; lack; latun; markieren; muffe; nadelfeile; nickel; oxydieren.

Mechanical engineering terms are borrowed from different languages, which can be given as follows (See table 5):

Table 5.

Etymology of mechanical engineering terms

№	Languages	Mechanical engineering terms
1.	Turkish	олмос (diamond – unchangeable); нефть (oil, Persian fire fast)
2.	Dutch	брезент (tarpaulin – fire-resistant thick cloth); дюйм (inch – thumb); кран-балка (crankshaft); тал (tal)
3.	Swedish	ангстрем (from the name A.Y. Angstrem)
4.	Italian	брутто (brute – not clean, coarse); carretta

5.	Persian	дамашқ пўлати – (steel)
6.	Хинд тили	корунд (корунд)
7.	Indian	пико (small measurement unit)
8.	Russian	светофор (traffic lights)

Interactive teaching is the most effective way of increasing learning effectiveness in educational process. By its nature, interactivity is the study of students' knowledge, skills, together in the acquisition of qualifications and certain moral qualities, the ability to organize a movement based on mutual cooperation means possessions. Logically, interactivity is, first of all, a dialogue of social subjects, mutual cooperation based activities [Zakinov E., 2014; 82]. We recommend the following methodology of teaching terms related to the field of mechanical engineering students during our research. Case study and projects are used in this methodology (See Figure 1).

The selection of study cases was based on the following criteria:

– cases which help to identify awareness of mechanical engineering terms;

– cases aimed at understanding and analyzing the interdependence, interrelationships between mechanical engineering terms;

– systematization of mechanical engineering terms, cases requiring the expression of synthesis;

– cases on the practical application of mechanical engineering terms, the full demonstration of existing skills and abilities.

– The study was based on the following criteria in the development of case studies:

– case solving assignments;

– case solving questions.

Here are some examples of cases that allow to analyze and evaluate the activities of students:

Case 1. Case description. Consistent measures are being taken in our country to develop the industry of agricultural machinery, increase the volume and expand the range of finished products for export, as well as provide the population with locally produced machinery.

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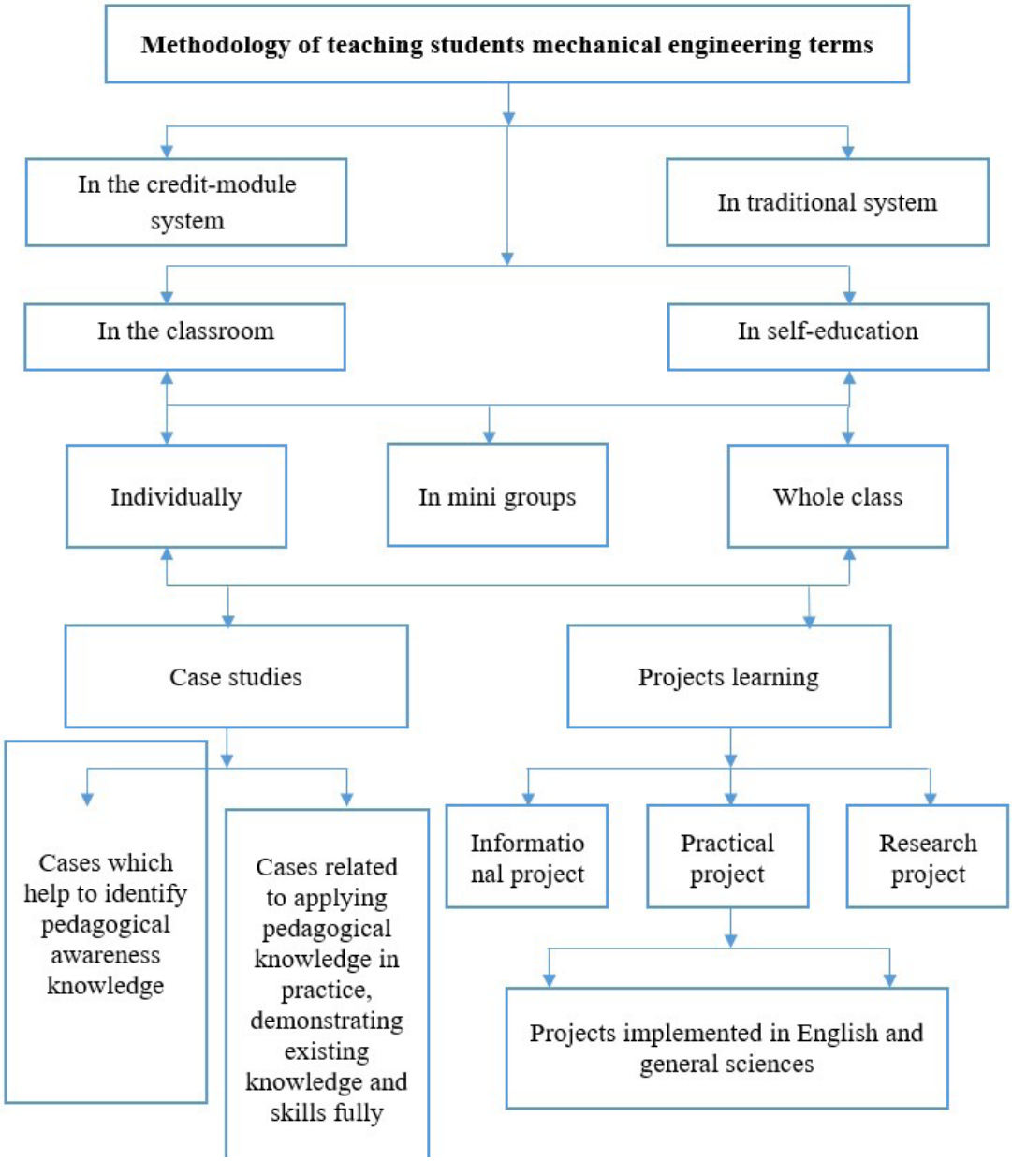

Figure 1. Methodology of teaching students mechanical engineering terms

A special attention should be paid to this sphere as there is no system of cooperation between domestic agricultural machinery manufacturers, a high share of imported machinery, a lack of a stable system of equipment supply to the agricultural sector, incomplete maintenance of machinery and incompatibility of science and production.

Case task. Match suitable agricultural machines:

1.	Чўмичи икки жағли МТЗ 82.1 трактори базасидаги АМКОДОР 134	А	Fish transporting truck
2.	МТЗ 82.1 трактори базасидаги АМКОДОР 134-01	Б	Washing and water sprinkling machine
3.	Борти буриладиган АМКОДОР 211	С	Sewage treatment machine
4.	АМКОДОР 320	Д	Generalized road machine
5.	МТЗ 92П трактор базасидаги АМКОДОР 702ЕА	Э	Excavator-loader
6.	МТЗ 92П трактор базасидаги АМКОДОР 702ЕМ-03	Ф	Excavator-loader
7.	АМКОДОР 732	Г	Excavator-loader
8.	Тс 21647421-003:2014	Ҳ	Single-bucket universal loader
9.	Тс 21647421-001:2013	И	Universal loader
10.	Тс 21647421-003:2014	Ж	Loader (equipped with an agricultural suspension)
11.	ТШ 21647421-007:2011	К	Loader

A paper for doing case task:

Question	1	2	3	4	5	6	7	8	9	10	11
Answer											

Project work – 1) a method of organizing independent learning activities aimed at searching, researching and solving problems of students, the formalization of the results in the form of products; 2) a means of educational activity aimed at solving practical tasks on the basis of theoretical knowledge; 3) didactic tool aimed at development, upbringing, education, enrichment, strengthening of knowledge and formation of skills [Radovel V., 2016; 284].

Selection of project works is based on the following criteria:

– informational projects that help to define the knowledge of terms in the field of mechanical engineering in general sciences;

– practical projects which help to determine the translation and comprehension of mechanical engineering terms in English.

The training was based on the following criteria in the development of project assignments:

– selection of terms related to English language topics;

– determine the contextualization of terms;

– conduct small research;

– be able to apply the terms in practice on the basis of theoretical understanding;

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– development of case studies (cluster, assignment) as a result of the educational project.

This project and its tasks are introduced to students. Within a week, pictures and data on white Whatman paper are done by small groups. Supervision of students' practical activities is carried out by the teacher on language skills. In each group, information and pictures based on the field of mechanical engineering, its types are designed on the basis of 4 language skills.

Informational project (1st stage). The machine industry or machinery industry is a subsector of the industry, that produces and maintains machines for consumers, the industry, and most other companies in the economy. This machine industry traditionally belongs to the heavy industry. Nowadays, many smaller companies in this branch are considered part of the light industry. Most manufacturers in the machinery industry are called machine factories. The machine industry is a subsector of the industry that produces a range of products from power tools, different types of machines, and domestic technology to factory equipment etc. On the one hand the machine industry provides:

The means of production for businesses in the agriculture, mining, industry an d construction;

The means of production for public utility, such as equipment for the production and distribution of gas, electricity and water;

A range of supporting equipment for all sectors of the economy, such as equipment for heating, ventilation, and air conditioning of buildings.

These means of production are called capital goods, because a certain amount of capital is invested. Much of those production machines require regular maintenance, which becomes supplied by specialized companies in the machine industry. On the other end the machinery industry supplies consumer goods, including kitchen appliances, refrigerators, washers, dryers and alike. Production of radio and television, however, is generally considered belonging to the electrical equipment industry. The machinery industry itself is a major customer of the steel industry. The production of the machinery industry varies widely from single-unit production and series production to mass production. Single-unit production is about constructing unique products, which are specified in specific customer requirements. Due to modular design such devices and machines can often be manufactured in small series, which significantly reduces the costs. From a certain stage in the production, the specific customer requirements are built in, and the unique product is created.

Describe mechanical engineering terms in the Cluster and use additional terms: machine industry, industry, maintains machines, heavy industry, light industry, machine factories, power tools, types of machines, domestic technology, factory, means of production, agriculture, mining, construction, public utility, heating, ventilation, air conditioning of buildings, capital goods, steel industry, series production, mass production, modular design.

Practical project (2nd stage). Give oral examples to the following mechanical engineering terms:

Agricultural machine industry;
Metalworking Machine - Industry and machine tool factories;
Manufacturers of machinery and equipment for the food, chemical and allied industries;
Manufacturers of machinery and equipment for the rubber and plastics;
Manufacturers of gears, gearing and driving elements;
Manufacturers of machinery and equipment and wood furniture etc;
Manufacturers of steam boiler, and power tools industry;
Office machinery industry;
Other machinery and equipment industry.

Research project (3rd stage). Find an antonym to the first word in every line:

1. to depend – a) to be based; b) to be independent; c) to be concerned.
2. ancient – a) modern; b) old; c) early.
3. to appear – a) to date back; b) to invent; c) to go away.
4. to erect – a) to build; b) to invent; c) to destroy.
5. widespread – a) limited; b) broad; c) reliable.
6. to assume – a) to take; b) to devise; c) to reject.
7. reliability – a) unity; b) unsafety; c) stability.
8. to extend – a) to shorten; b) to lengthen; c) to erect.
9. to raise – a) to increase; b) to decrease; c) to devise.
10. versatile – a) programmable; b) functional; c) one-sided.

The results of the use of case studies and educational projects were applied to practical training and independent learning on the basis of an experimental program of teaching pedagogical terms, teaching terms in the field of mechanical engineering, developed on the 1st, 2nd, 3rd years of mechanical education. Pedagogical experimental work was carried out in AndMI, Fergana PI, TSTU and Turin Polytechnical University in Tashkent in the field of "Mechanical Engineering, Equipment and Automation of Mechanical Engineering" in the 2019-2020 academic year, diagnostic and forecasting, organizational training, practical and generalized stages were organized. The main aim of the pedagogical experiment was to teach mechanical engineering terms, to determine the conditions and to test them, which was carried out in 3 stages:

approving (2019);
determining (2019);
test (2019-2020 academic year).

The aim of the approving experiment is to identify and study mechanical engineering terms that need to be taught in the areas of study.

The aim of the determining experiment is to organize general preparation for the research, to determine the forms and methods of teaching mechanical engineering terms, to conduct methodological work, to develop assignments for classroom and extracurricular activities.

The purpose of pedagogical experiments is to conduct research, to collect reliable data on the teaching of terms in the field of mechanical engineering on the basis of the obtained results.

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The test places and participants, the description of the pedagogical process were identified, methodological and organizational support was developed at the organizational-preparatory stage of the pedagogical experiment.

At the beginning of the 2019-2020 academic year, 54 AndMI students in experimental groups and 48 in control groups, 55 Fergana PI students in experimental groups and 42 in control groups, 56 TDTU students in experimental groups and 57 in control groups and 23 students from Turin Polytechnic University in Tashkent participated in the experimental groups and 20 in the control groups. A total of 188 students in the experimental groups and 167 students in the control groups participated in the experiment in this academic year.

At the end of the internship in the 2019-2020 academic year, 52 AndMI students in the experimental groups and 46 in the control groups, 52 Fergana PI students in the experimental groups and 43 in the control groups, 55 TDTU students in the experimental groups and 53 in the control groups and 22 students from Turin Polytechnic University in Tashkent and 19 in the control groups participated in the experimental groups. A total of 181 students participated in the experimental groups, and 161 students in the control groups in this academic year (see Table 6):

Table 6.

The number selected participants in pedagogical experiment process

Higher educational institution	**The number of students at the beginning of the experiment**		**The number of students at the end of the experiment**		**Total**	
	E	**C**	**E**	**C**	**E**	**C**
AndMI	54	48	52	46	**106**	**94**
Ferghana PI	55	42	52	43	**107**	**85**
TSTU	56	57	55	53	**111**	**110**
Turin PU	23	20	22	19	**45**	**39**
Total	**188**	**167**	**181**	**161**	**369**	**328**

The number of experimental selection for the higher educational institutions will be shown in figure 2 (see figure 2).

The researcher took the following measures for the pedagogical process under study in the organization of the experiment: conditions were created in universities in order to ensure teaching of mechanical engineering terms to students. In the course of experimental work, the effectiveness of the forms and methods of teaching students mechanical engineering terms (in-class and out-of-class) was systematically identified and registered in experimental and control groups. The processes of implementation of pedagogical events were clearly described

The vocabulary, case studies and analysis of independent work assignments related to the field of mechanical engineering were defined in the organization and conducting trainings listed in the program.

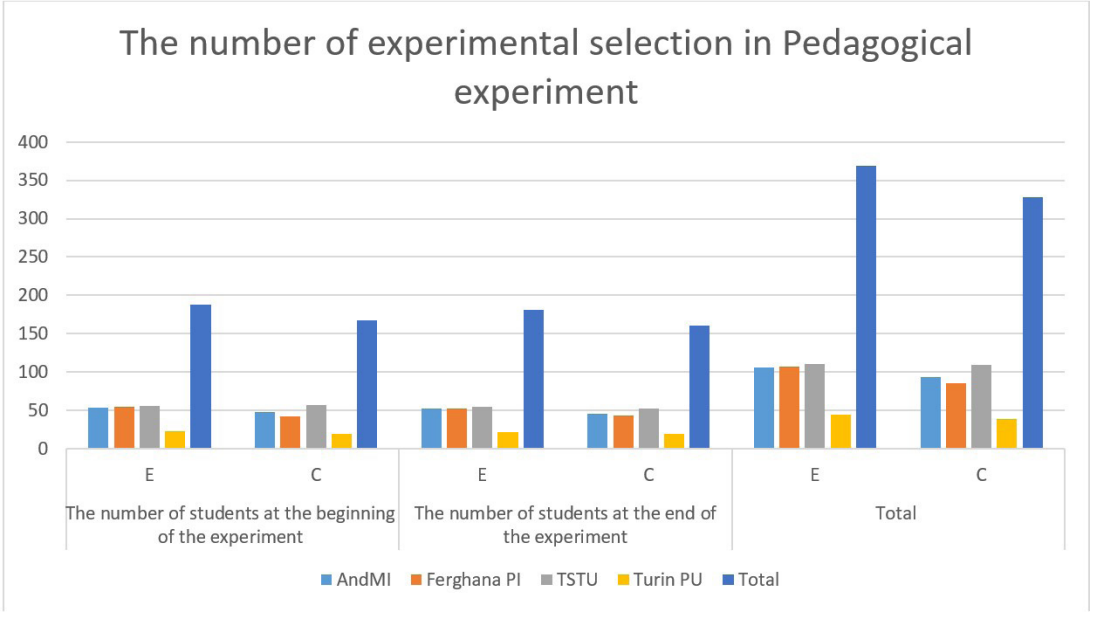

Figure 2. Participation of HEI in the experiment

1. The experimental work was processed using the method cto develop pedagogical experimental program;
2. to select educational and didactic materials on mechanical engineering terms;
3. to work out project of project based teaching;
4. to work out case studies.

To conduct a pedagogical experiment, the researcher defined the experimental program as a sequence of teaching mechanical engineering terms, the tasks of which are the stages of experimental work in the program, its parts, intermediate results and their achievement. Programs for conducting pedagogical experiments on teaching terms related to the field of mechanical engineering for students of the 1st, 2nd, 3rd stages of education in the field of pedagogical experimental work.

Organizational support of pedagogical experiment is based on testing the scientific novelty of the research in practice, determining the conditions, the process of discussion of research work by the educational institution, the organization and completion of the experiment and the introduction of research results in education based on the development of recommendations.

The emphasis focusing on teaching mechanical engineering terms, forming and controlling the process of teaching, mechanical engineering terms and supervising their teaching conducted in groups in parallel and mixed in the practical stage of the pedagogical experiment. The pedagogical experiment was developed on special assignments for students of the 1st, 2nd, 3rd levels in the field of mechanical engineering. Students were assessed according to: study cases; project works.

Summarizing the mechanical engineering terms which should be taught to

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students, the results of acquiring and quality indicators for the 2019-2020 academic year and according to the assessment criteria, they were assessed as follows:

1. "Excellent" – an in-depth and comprehensive analysis of the theoretical and practical significance of mechanical engineering terms, the answer to which the tasks in the field of mechanical engineering were performed without errors.
2. "Good" – understanding the theoretical and practical significance of the terms in the field of mechanical engineering, performing the tasks in the field of mechanical engineering with some shortcomings.
3. "Satisfactory" – understanding the theoretical and practical significance of the mechanical engineering terms, doing the tasks related to the mechanical engineering terms with confusion.
4. "Unsatisfactory" – for failure to understand the theoretical and practical significance of mechanical engineering terms, failure to do the tasks related to mechanical engineering terms, failure to answer questions.

Thus, the marks «Excellent», «Good», «Satisfactory» and «Unsatisfactory» were assessment criteria to check the theoretical and practical knowledge and skills of students about mechanical engineering terms.

Students were assessed under the following types of assessment and statistical analysis was conducted.

Case study tasks were created to focus the requirements of 1-3 courses on creative work and find solutions to problematic situations, and the results of their implementation were evaluated in the experimental work (see Table 7)

Table 7.

The results of case study tasks

Courses	**AndMI**		**FarPI**		**TSTU**		**TurinPU**		**Total**	
	EG	CG	EG	CG	EG	CG	EG	CG	**EG**	**CG**
1st year	29	28	26	25	38	33	43	41	**136**	**127**
«Excellent»	6	4	6	4	7	3	6	3	**25**	**14**
«Good»	15	7	15	7	21	11	22	10	**73**	**35**
«Satisfactory»	8	14	5	12	10	17	15	27	**38**	**70**
«Unsatisfactory»	0	3	0	2	0	2	0	1	**0**	**8**
2nd year	31	29	32	32	41	37	-	-	**104**	**98**
«Excellent»	31	29	32	32	41	37	**0**	**0**	**104**	**98**
«Good»	7	4	8	4	9	4			**24**	**12**
«Satisfactory»	18	9	17	10	26	14			**61**	**33**
«Unsatisfactory»	6	14	7	16	6	17			**19**	**47**
3rd year	42	41	39	38	34	38	-	-	**115**	**117**
«Excellent»	8	3	8	3	7	3			**23**	**9**
«Good»	21	11	21	10	19	11			**61**	**32**
«Satisfactory»	13	24	10	24	8	22			**31**	**70**
«Unsatisfactory»	0	3	0	1	0	2	0	0	**0**	**6**
TOTAL	**102**	**98**	**97**	**95**	**113**	**108**	**43**	**41**	**355**	**342**
«Excellent»	**21**	**11**	**22**	**11**	**23**	**10**	**6**	**3**	**72**	**35**
«Good»	**54**	**27**	**53**	**27**	**66**	**36**	**22**	**10**	**195**	**100**

«Satisfactory»	**27**	**52**	**22**	**52**	**24**	**56**	**15**	**27**	**88**	**187**
«Unsatisfactory»	**0**	**8**	**0**	**5**	**0**	**6**	**0**	**1**	**0**	**20**

Project work tasks were prepared for the 1-3 courses and the results on their fulfillment were taken (See table 8):

Table 8

The results of the project assignments

Courses	**AndMI**		**FarPI**		**TSTU**		**TurinPU**		**TOTAL**	
	EG	CG	EG	CG	EG	CG	EG	CG	**EG**	**CG**
1st year	29	28	26	25	38	33	43	41	**136**	**127**
«Excellent»	8	4	8	4	8	3	9	4	**33**	**15**
«Good»	16	8	14	7	23	11	25	10	**78**	**36**
«Satisfactory»	5	15	4	13	7	18	9	26	**25**	**72**
«Unsatisfactory»	0	1	0	1	0	1	0	1	**0**	**4**
2nd year	31	29	32	32	41	37	-	-	**104**	**98**
«Excellent»	8	4	9	4	9	4			**26**	**12**
«Good»	20	9	17	10	27	13			**64**	**32**
«Satisfactory»	3	15	6	17	5	18			**14**	**50**
«Unsatisfactory»	0	1	0	1	0	2	0	0	**0**	**4**
3rd year	42	41	39	38	34	38	-	-	**115**	**117**
«Excellent»	11	4	9	3	8	3			**28**	**10**
«Good»	22	11	22	11	19	11			**63**	**33**
«Satisfactory»	9	25	8	23	7	23			**24**	**71**
«Unsatisfactory»	0	1	0	1	0	1	0	0	**0**	**3**
TOTAL	**102**	**98**	**97**	**95**	**113**	**108**	**43**	**41**	**355**	**342**
«Excellent»	**27**	**12**	**26**	**11**	**25**	**10**	**9**	**4**	**87**	**37**
«Good»	**58**	**28**	**53**	**28**	**69**	**35**	**25**	**10**	**205**	**101**
«Satisfactory»	**17**	**55**	**18**	**53**	**19**	**59**	**9**	**26**	**63**	**193**
«Unsatisfactory»	**0**	**3**	**0**	**3**	**0**	**4**	**0**	**1**	**0**	**11**

The experimental groups were given translation of vocabulary terms, vocabulary and independent work assignments, and the control groups were given a simple daily lesson after obtaining the initial data. It was revealed that there is a significant difference in the quality (percentage) of students and the mastery of students (percentage) in the acquisition of theoretical knowledge, practical skills and abilities of students in the field of engineering at the end of the pedagogical experiment. The following are the indicators of efficiency (quality and mastery) of students' acquisition mechanical engineering terms according to the tasks performed in the experimental process are given in Table 9 (see Table 9):

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Table 9

Acquisition and quality results (indicators) of mechanical engineering terms

№	Type of experiment	Students	Quality results (%)		Acquisition results (%)	
			E	C	E	C
1.	Case studies	Number	267	135	355	322
		Per cent	64,2%	33,6%	79,1%	66,4%
2.	Project works	Number	292	138	355	331
		Per cent	70,7%	34,4%	81,4%	68,3%

Now, let us conduct a statistical analysis on the types of tests and their results which were conducted in the 2nd and 3rd stages of the experiment. Summarizing table will be arranged according to table 9 below (See table 10):

Table 10.

Report on the results of case studies tasks

Groups	«Excellent»	«Good»	«Satisfac-tory»	«Unsatisfac-tory»	Total
1st selection (Experimental group)	O_{11}= 72	O_{12}=195	O_{13}=88	O_{14}=0	**n_1=355**
2nd selection (Control group)	O_{21}=35	O_{22}=100	O_{23}=187	O_{24}=20	**n_2=342**
	O_{11}+ O_{21}=107	O_{12}+O_{22}=295	O_{13}+O_{23}=275	O_{14}+O_{24}=20	**n_1+n_2 =697**

According to this account, as $T_{observation}$ = 98,02 > $T_{кр}$ = 7,81 the zero hypothesis is rejected, and the first hypothesis has been approved.

Medium results in the groups

Efficiency:

It can be seen that the knowledge levels of the selected experimental groups differed from the knowledge levels of the control groups, and the research conducted on the conclusion of their assimilation indicator hypothesis proved to be effective in the experimental group.

The following table summarizes the empirical value of c

Courses	AndMI		FarPI		TSTU		Turin PU		TOTAL	
	EG	CG	EG	CG	EG	CG	EG	CG	EG	CG
1st year	29	28	26	25	38	33	43	41	136	127
Mean value	3,93	3,43	4,04	3,52	3,92	3,45	3,79	3,37	3,90	3,43
Efficiency	1,15		1,15		1,14		1,13		1,14	
c	7,93		8,17		8,23		9,89		33,69	

Criteria conclusion	H1		H1		H1		H1		H1	
2nd year	31	29	32	32	41	37			**104**	**98**
Mean value	4,03	3,52	4,03	3,50	4,07	3,54			4,05	3,52
Efficiency	1,15		1,15		1,15				1,15	
c	8,96		8,67		12,61				30,07	
Criteria conclusion	H1		H1		H1				H1	
3rd year	42	41	39	38	34	38	0	0	115	117
Mean value	3,88	3,34	3,95	3,39	3,97	3,39			3,93	3,38
Efficiency	1,16		1,16		1,17				1,16	
c	11,66		12,93		12,08				36,21	
Criteria conclusion	H1		H1		H1				H1	
TOTAL	**102**	**98**	**97**	**95**	**113**	**108**	**43**	**41**	**355**	**342**
Mean value	3,94	3,42	4,00	3,46	3,99	3,46	3,79	3,37	3,95	3,44
Efficiency	1,15		1,16		1,15		1,13		1,15	
c	27,97		29,26		32,65		9,89		98,82	
Criteria conclusion	H1		H1		H1		H1		H1	

As the statistical results in all stages show $\grave{O}_{observation} > T_{\tilde{o}}$ H_1 hypothesis is approved and it is proved that the efficiency increased 1,15 times, i.e. 15 %. Statistical report will be given according to the data of table 12 (See table12):

Table 12.

Statistical analysis of project works

Courses	**AndMI**		**FarPI**		**TDSU**		**Turin PU**		**TOTAL**	
	ТГ	НГ	ТГ	НГ	ТГ	НГ	ТГ	НГ	ТГ	НГ
1st year	29	28	26	25	38	33	43	41	136	127
Mean value	4,10	3,54	4,15	3,56	4,03	3,48	4,00	3,41	4,06	3,49
Efficiency	1,16		1,17		1,16		1,17		1,16	
c	9,99		9,42		12,06		17,57		48,75	
Criteria conclusion	H1		H1		H1		H1		H1	
2nd year	31	29	32	32	41	37			104	98
Mean value	4,16	3,55	4,09	3,53	4,10	3,51			4,12	3,53
Efficiency	1,17		1,16		1,17				1,17	
c	14,46		10,00		16,01				39,93	
Criteria conclusion	H1		H1		H1				H1	
3rd year	42	41	39	38	34	38			115	117

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Mean value	4,05	3,44	4,03	3,42	4,03	3,42			4,03	3,43
Efficiency	1,18		1,18		1,18				1,18	
c	15,45		14,91		13,76				44,14	
Criteria conclusion	H1		H1		H1				H1	
TOTAL	**102**	**98**	**97**	**95**	**113**	**108**	**43**	**41**	**355**	**342**
Mean value	4,10	3,50	4,08	3,49	4,05	3,47	4,00	3,41	4,07	3,48
Efficiency	1,17		1,17		1,17		1,17		1,17	
c	39,23		34,03		41,97		17,57		132,33	
Criteria conclusion	H1		H1		H1		H1		H1	

As statistical analysis of doing project works in all stages is $\grave{O}_{observation} > T_{\tilde{o}}$ H_1 hypothesis has been approved and their efficiency has increases 1.17 times, i.e. 17 per cent (See figure 3):

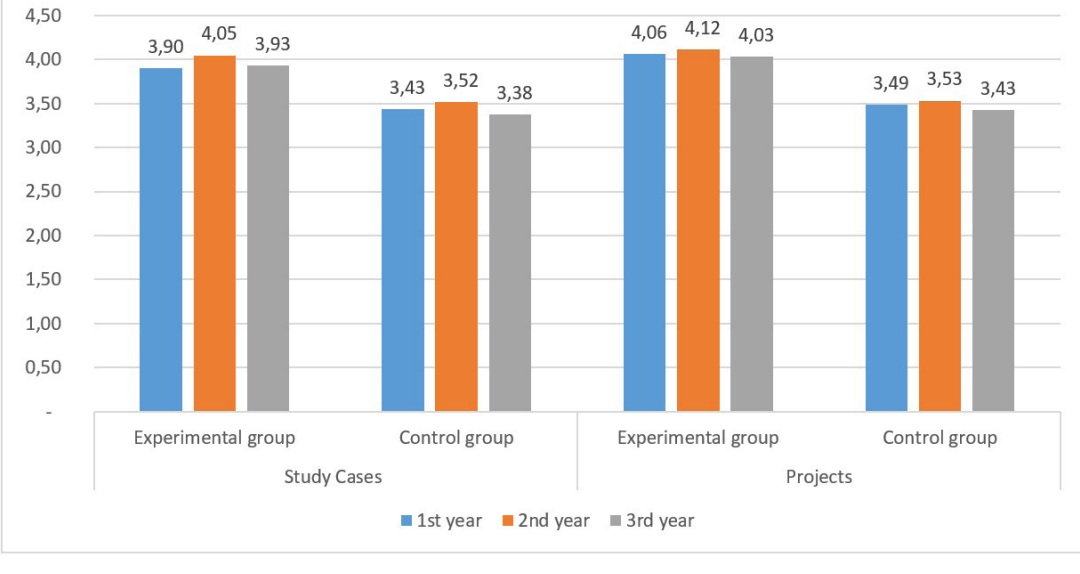

Figure 3. Mean value of students on case study and projects

As a result of experimental research, it was proved by mathematical statistical methods that the efficiency was achieved by 15% in case studies and 17% in educational projects. It was found that the mean value of the scores in the experimental group was 17% higher than in the control group. Hence, the research conducted has proven to be effective.

CONCLUSION

The difficulties that arise in the process of comparing terminological activities show not only the specificity of individual languages, but also the specific role of

terms in the national language system. Comparing the terminology of the English and Uzbek languages in the field of mechanical engineering not only allows to determine the general and specific features of the terms of mechanical engineering in the two languages, but also provides an in-depth study of both terminological systems.

1. Proof of the appropriate choice of materials for the teaching of mechanical engineering terms at educational institutions of the selected experimental site requires the results of research to conduct pedagogical experiments in higher education institutions. The theoretical and practical mastery of the terms related to the field of mechanical engineering by students was determined by the results of experiments in the 2019-2020 academic year.

2. The experimental group took into account the analysis of the positive aspects of the methods chosen by the researcher of materials related to the field of mechanical engineering, which should be acquired by students in the field of mechanical engineering. As a result, the methodology of teaching the mechanical engineering terms, developed by the researcher, requires implementation in practice.

3. The results of pedagogical experiments confirmed the increase in the quality of students' knowledge and the effectiveness of the proposed teaching methods on the experimental sites.

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