

working conditions are often very important. For example, the lumpen type can be rather effective in stable conditions and strict hierarchy.

Table 4 illustrates preferred motivational types depending on the occupied position and expected results.

The use of motivational types in labor-management relations is typical for personnel management. It is reasonable to advance the current research by analyzing the desired motivational types and/or their selection at the stage of education. While testing students, it has been revealed that motivational types fully develop by the end of the third year of education. The motivational type affects student's success and attitude towards education.

A student of host motivational type is striving to follow his/her learning path and build partnership relationship with an instructor. A student of professional type demonstrates good academic performance only in the disciplines that are interesting, and this type is the most sensitive to

innovative teaching techniques. Students of the lumpen type demonstrate the worst academic performance and quite often negatively respond to innovative teaching techniques. This type is not likely to change. Any type could evolve to the closest one. For example, the lumpen type will never become the host one, however, the latter could demonstrate the attributes of the former under certain negative conditions.

Motivational theory of Gerchikov might be applied for resolving a wide range of tasks which are not necessary related to personnel management. As the studies of the motivational types, especially their combinations, were not finished by V.I. Gerchikov, the empirical research in this sphere is relevant and urgent. In our opinion, research aimed at revealing peculiarities within certain market sectors, especially in real economy where motivation is neglected in comparison with engineering competencies and skills, is of particular interest.

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UDC 316

Popularity of Engineering Professions: Results of Sociological Survey

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Abstract

The article discloses an analysis of the current state of school students' interest in scientific and engineering majors – a comparative analysis of the popularity of engineering professions and university majors among youth based on the results of sociological surveys and informational and analytical materials of higher educational institutions efficiency monitoring.

Key words: sociological survey, majors, engineer, engineering specialties, interest.

Engineering education today is one of the priorities of the governmental policy in the sphere of education, which reflects the need for technological upgrade of Russian production industry and development of corresponding workforce for the industry.

Nowadays, attraction of high school graduates to receiving engineering education is one of the most topical tasks for modern Russia.

It is evident that in the current conditions there is a need for analyzing the issue of students' interest in scientific and engineering majors, which can permit development of actions for qualified satisfaction of both, the demand of the youth interested in engineering education, and the need for resourcing of Russian industrial sector with highly qualified specialists.

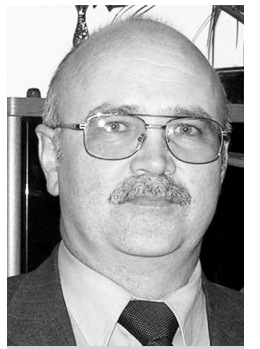
According to the data of various sociological surveys, graduates of Russian high schools tend to choose engineering and technical specialties with an increasing frequency, whereas before the higher interest was shown towards law and economics. These results have been discussed on various national meetings of executive agencies managers in the sphere of education of the Russian Federation constituent entities [1].

For instance, a sociological research has been conducted by Saint-Petersburg State Budgetary Institution "Center for Promotion of Employment and Professional Orientation of the Youth "VECTOR" in 2015 among 18459 students of 9th and 11th grades from 272 general education institutions of Saint Petersburg. The following results have been received (Fig. 1).

At the moment 6 graduates of 9th and 11th grades of general schools knowingly choose engineering and technical area; the proportion of this choice is almost equal to the choice of Social Sciences.

Modern-day students neither want to get higher education simply for the purpose of a diploma, nor do they want to "suffer on labor market while looking for an unwanted job" [3]. At least, this is the conclusion made by the researchers of State Unitary Enterprise "Saint-Petersburg Information and Analytical Center" [3].

Thus, in the result of the 2015 poll, according to the high school students' perceptions the top among well-paid professions is the profession of an engineer. Every fourth young person believes that it is the engineering diploma that will ease the process of finding a worthy job in the

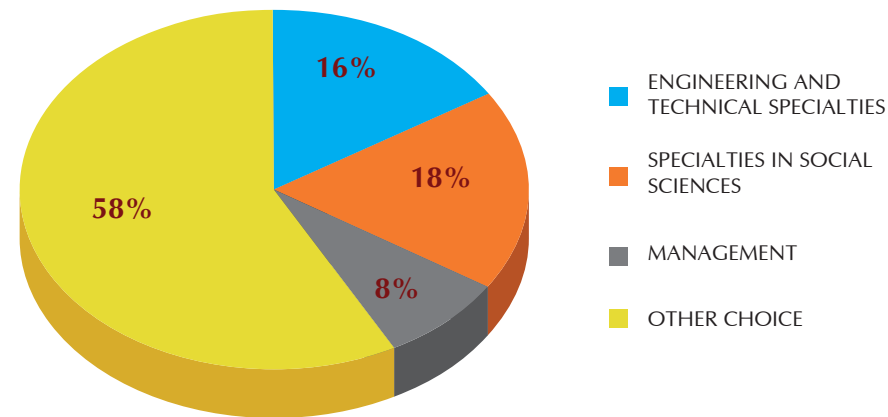


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Fig. 1. Results of sociological research on popularity of majors among school students of Saint Petersburg in 2015



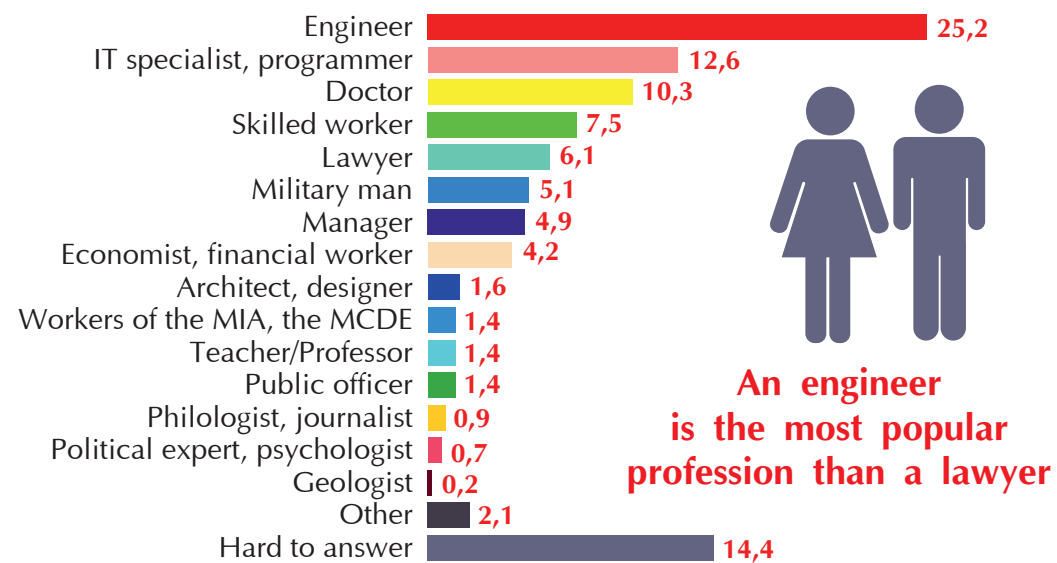
years to come. The second place in the rating of high school students' preferences is the profession of a programmer and other specialties in IT. They are followed by doctors and skilled workers (Fig. 2).

A comparative rating of professional preferences (Table 1) has been prepared as a result of the sociological research conducted by Saint-Petersburg State Budgetary Institution "Center for Promotion

of Employment and Professional Orientation of the Youth "VECTOR" [2].

Among technical professions the most popular is the profession of an engineer with various specializations. In 2015 it has been chosen by 1770 students (9.6% of the respondents). It is followed by IT-specialist (4%), architect (1.5%), automotive serviceman (1%), and programmer (0.6%).

Fig. 2. Distribution of responds to the question "with which professions it will be easier to find a worthy high-paid job in the years to come", % of responds



Where Workers of the MIA, the MCDE - Workers of the Ministry of Internal Affairs, the Ministry for Civil Defense, Emergencies and Elimination of Consequences of Natural Disasters

Table 1. Comparative rating of professional preferences (by professions) according to the sociological research

Profession 2007	Profession 2010	Profession 2015
IT-specialist	Doctor	Engineer
Doctor	Teacher	Manager
Automotive serviceman	Lawyer	Economist
Teacher	Manager	Doctor
Economist	Designer	Teacher
Lawyer	Cook	IT-specialist
Accountant	Engineer	Lawyer

In line with the increased interest of youth towards receiving higher education in engineering majors, the number of budget-funded places in universities has been increasing for several years. Results of enrollment campaigns of the past years indicate that the interest keeps rising. There are more and more professionally oriented young people among first year university students, who entered universities with an aim to receive prestige specialties [4].

The choice of IT specialties is as popular among Russian high school graduates.

In May 2016, Zoom Market agency conducted a sociological survey among high school graduates of 2016, who were planning to enroll in HEIs, to identify their choice of faculty and future specialties [5]. Among the respondents there were 1900 high school graduates of 2016 from 19 cities of the Russian Federation. The respondents were graduates in the age of 16–17.

The survey indicated that the majority (32%) of high school graduates prefers IT-specialties (programmer, web-designer, system administrator), the second popular choice is law. 18% of the respondents want to be lawyers. The third choice is given to management and marketing (15%). 13% of the respondents want to become engineers, whereas 9% would like to enroll to financial faculties (most popular specialties are:

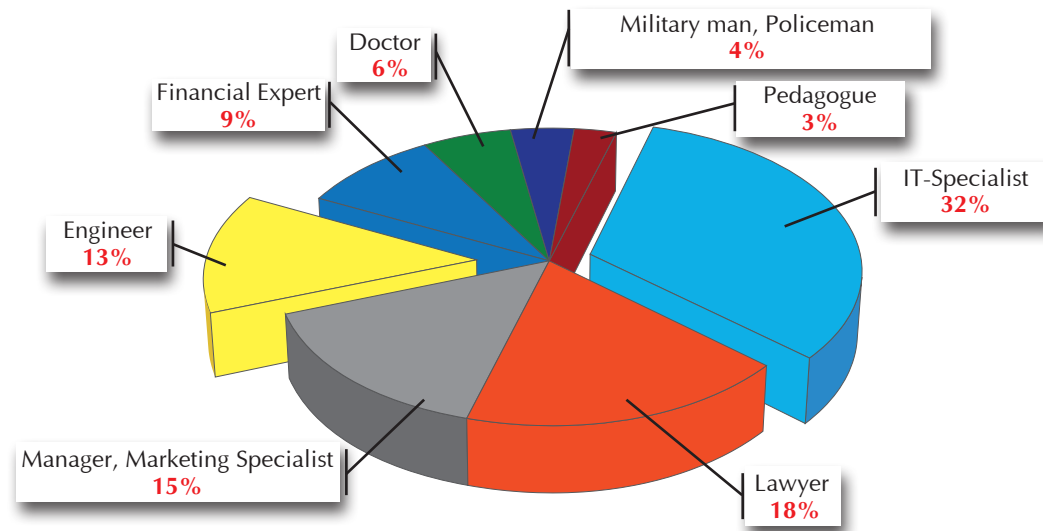
financial manager, accountant, financial director). 6% of the graduates want to get involved in medicine (surgeons, dentists, pharmacists). Building careers in law enforcement agencies interests 4% of the graduates (military, police and other agencies). No more than 3% of the respondents are willing to enroll at faculties of Social Sciences (philology, history, psychology, philosophy, pedagogy) (Fig. 3).

Thus, the results of the analysis demonstrate positive trends connected with the rise of popularity of engineering majors, whose graduates are in demand by the real sector of economy. At the same time, due to relatively complex technical disciplines, certain dispositions of enrollees, as well as other reasons, socio-economic majors still represent quite a common choice.

Students' interest in engineering majors in different regions has been analyzed with the use of Informational and Analytical materials of the conducted efficiency monitoring of HEIs [6]. Students' allocation according to the knowledge areas in Moscow and Saint-Petersburg are presented on the pictures 4 and 5.

Rectors of the leading HEIs of Moscow believe that enrollees are changing their attitudes towards the choice of professions trying to determine precisely what they will be doing tomorrow. Therefore, they lean

Fig. 3. Results of a sociological survey by Zoom Market agency among high school graduates of 2016, who are planning to enroll in HEI; choice of future speciality



more and more to the real economic sector, the industry, understanding that the future of the country is in advanced industry.

Keen interest in engineering specialties has been noted not only in HEIs of the two major cities, but also in the outlying regions.

Starting from 2015, HEIs of Khanty-Mansi Autonomous Okrug (Constituent entity of the Russian Federation, Ed.) underline the following trends in their enrollment campaign: enrollees show great interest in engineering specialties, whereas the interest towards economic majors has decreased significantly (Fig. 6).

Students' interests, for instance, in Surgut State University have changed significantly. In 2015, the demand towards engineering specialties has been unprecedented. The quota for budgetary places for these specialties has been increased extensively comparing to the previous enrollment campaigns. At the same time, the number of paid enrollees for economic majors, which have set popularity records in the past decade, has decreased substantially comparing to the previous years. Focus on engineering specialties and their active propaganda show positive results [7].

In 2015, the number of students enrolled

on engineering specialties in Pensa HEIs has increased on average by 8.4% comparing to the previous year [8].

Monitoring of the Unified State Exams (USE) in Pensa oblast (Constituent entity of the Russian Federation, Ed.) in 2015 showed that subject-oriented disciplines of engineering and technical classes became more demanded: over 80% of high school graduates chose USE on proficiency mathematics, the average grade for USE on physics has increased significantly (18% more comparing to the results of 2014). These are the results of Pensa oblast's active development of the system for schools students' engineering education, whose aim is to meet the needs of the regional labor market, to provide qualified engineers, IT-specialists, technicians, designers for enterprises.

Allocation of students according to knowledge areas in Pensa oblast is presented in fig. 7.

Around 30% of the respondents of the survey see these majors as a priority for themselves. The survey has been conducted by KMG Company on the request from Kalinigrad Regional Agency for Youth Affairs at the end of last year

Fig. 4. Students' allocation according to knowledge areas in Moscow

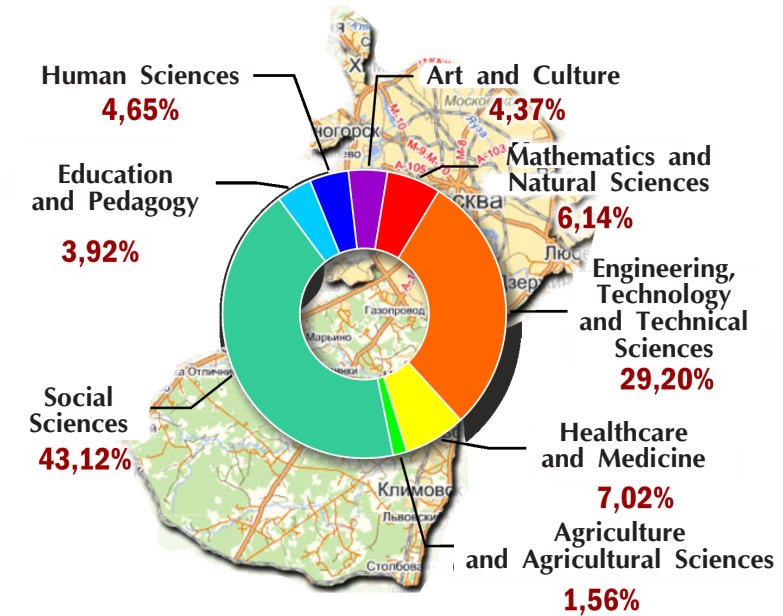
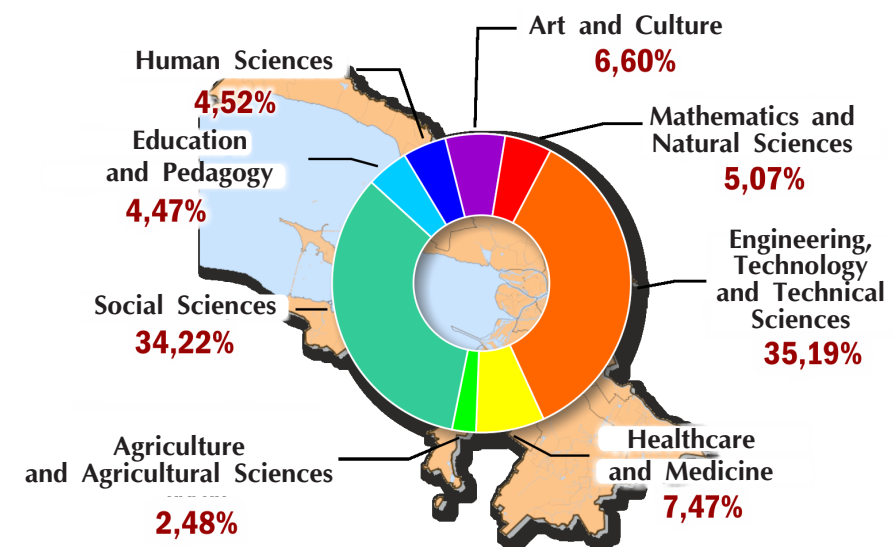


Fig. 5. Students' allocation according to knowledge areas in Saint-Petersburg



among youth of 14-30 years old, who live full-time in the region. The study showed that 20% of the respondents think that getting technical or engineering education is more prospective; another 10% choose

financial and economic majors; and 10% choose law. A noticeably lower part of youth chooses professions of doctors, pedagogues, military men and programmers – around 6% each.

Fig. 6. Students' allocation according to knowledge areas in Khanty-Mansi Autonomous Okrug

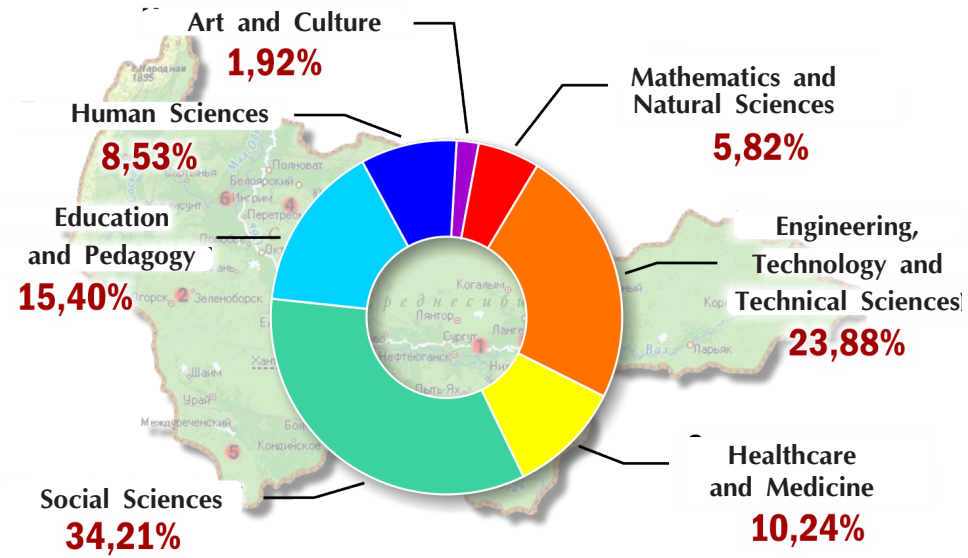
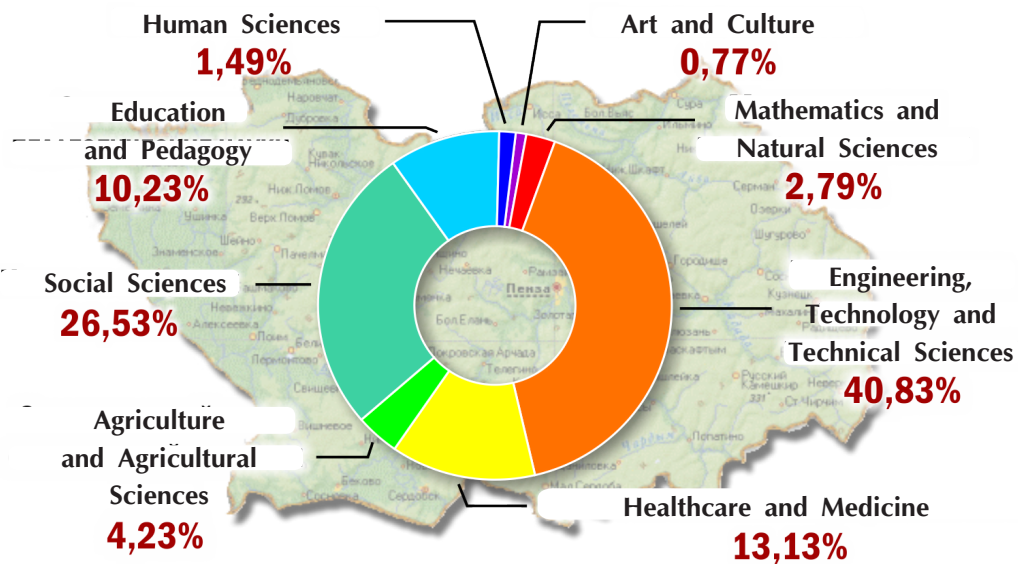


Fig. 7. Students' allocation according to knowledge areas in Pensa oblast



Allocation of students according to knowledge areas in Kaliningrad oblast (Constituent entity of the Russian Federation, Ed.) is presented in fig. 8

In Tyumen oblast (Constituent entity of the Russian Federation, Ed.) the results of the USE-2015 indicate that higher interest of graduates lies at the root of the exact sciences [10]. Allocation of students

according to knowledge areas in Tyumen oblast is demonstrated in fig. 9.

This is due to the changing preferences of youth in their choice of future place for education: enrollees far more actively choose engineering specialties, which fully corresponds to the needs of the regional economy. Labor market has been overloaded with lawyers a couple years back, and has

Fig. 8. Students' allocation according to knowledge areas in Kaliningrad oblast

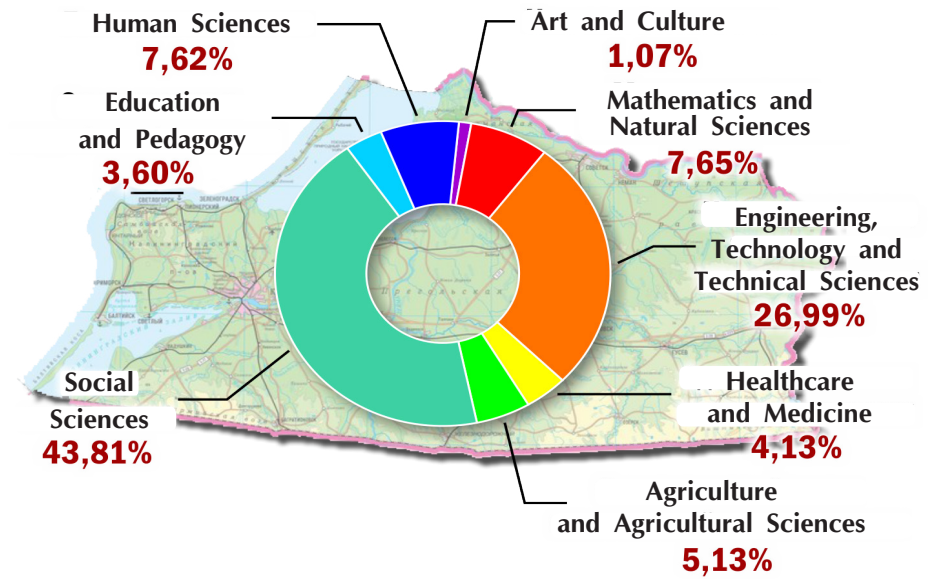
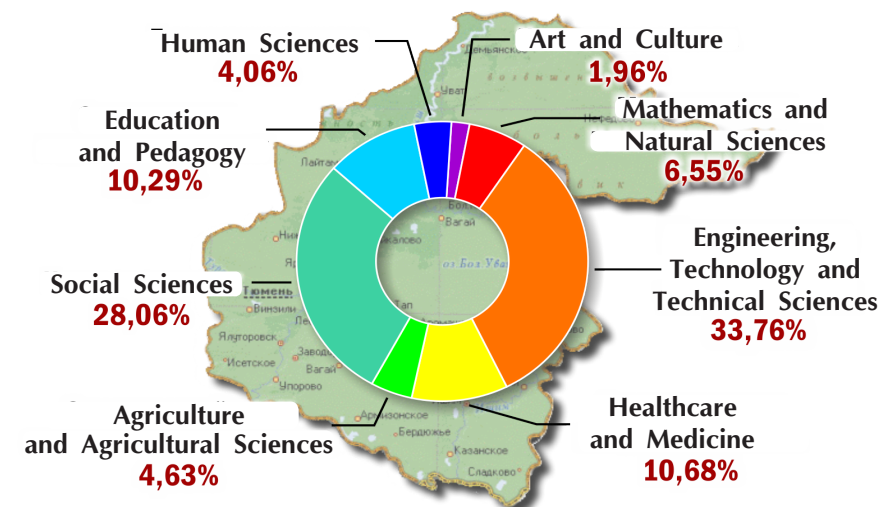


Fig. 9. Students' allocation according to knowledge areas in Tyumen oblast



shown a severe shortage of engineers. Today young people understand that by having a technical education they get more chances to find a good job; therefore they choose physics for their USE.

Sakha Republic (Constituent entity of the Russian Federation, Ed.) enrollees also tend to become engineers, emergency response workers and programmers [11]. Allocation of students according to knowledge areas in Sakha Republic is shown in fig. 10.

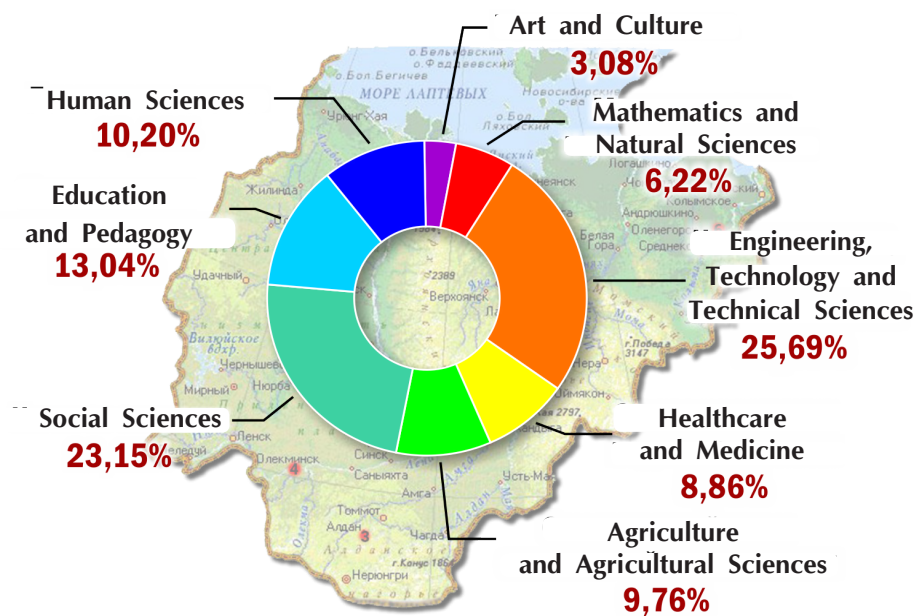
Sakha high school graduates strive to study on engineering specialties and to receive blue-collar jobs. Thus, in 2015, the most prestige specialty among enrollees was the "Technical Maintenance and Service for

Radioelectronic Technology" (11 applicants per 1 budgetary place).

The majority of the leading universities are located in the European part of Russia, mainly in Moscow and Saint-Petersburg. However the demand for specialists is as distinctive in other territories.

According to Vladimir Putin, the President of the Russian Federation, education has to be fully complied with the industrial production. At the same time, it should be understood, which industrial sectors will become the driving force for the development of territories, such as Ural, Siberia, Far East and Arctic Region [12].

Fig. 10. Students' allocation according to knowledge areas in Sakha Republic



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