

INDIVIDUAL WORK WITH TALENTED STUDENTS

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Actual problem of educational process in higher education institution is to form the creative self-developing individual of the student, who can not only consciously and systemically perceive and accumulate educational information, but also can acquire new knowledge by himself, use it effectively at the solution of non-standard applied tasks. Carrying out the subject Olympiad is one of means to disclose and develop the student creative potential. Subject Olympiad allows to show high level of assimilation of a training material and to show personal and moral and strong-willed qualities.

Department of theoretical mechanics and fundamentals of machine design in SUSU effectively conducts long-term systematic work on involvement of capable students to Olympiad movement. Annually in December and May within the University round of the theoretical mechanics Olympiad is held according to two programs: 1) for students of machine-building and construction specialties, 2) for students of not machine-building specialties. Students of thirteen faculties of the University who study theoretical mechanics in the different volume (one-semester and two-semester courses) and in various semesters are invited to competition. Therefore different level of student preparation is considered at the organization of the Olympiad. Winners and prize-winners of the Olympiad are identified on the basis of examination of the performed work. The team for participation in the regional, All-Russian and International Olympiad is formed from their number.

The basic course of theoretical mechanics provides an obligatory minimum of knowledge of a subject, but it isn't enough for the solution of Olympiad tasks of high complexity. Work with the interested students is organized within the facultative occupations and individual consultations. Additional classes are given for high-quality preparation of students for the Olympiad. The topics of these classes are 1) impact theory, 2) fluctuations of mechanical systems with one and two degrees of freedom, 3) kinematics and dynamics of spherical movement of a solid, 4) geometry of masses, analytical mechanics of systems with non-stationary links, dynamics of systems with a variable weight. Analysis of last years Olympiad tasks and discussion of different ways of their decisions are also passed on facultative occupations.

In 2012/2013 academic year the team of students of our University took part in five Olympiads on theoretical mechanics and applied mechanics where the team showed excellent results. Our team is the absolute winner in team and personal offsets on the regional and the All-

Russian Olympiads. Our students won the second and the first team places in theoretical competition and «Brain-ring», and the first place in personal superiority on the IX International Olympiad. Our students received one gold, three silver and two bronze medals on the Open international Internet Olympiad.

Systematic work on preparation for the Olympiad lays the basis of active creative work, promotes realization of intellectual student potential. Students develop such qualities, as an initiative, responsibility, cooperation, skill to communicate, ability to effective work individually and in team, ability to direct team on facultative occupations and, especially, during competitions. Students have to estimate the offered tasks, choose a specific task, understand its statement, choose a decision method, carefully execute mathematical actions, receive and analyse result during limited time in extreme conditions. Students gain ability of a discussion with experts, properly defend their point of view during the appeal.

Organizers of the Olympiad take care of raising the student cultural level. They arrange sightseeing tours of the city, invite to visit theaters and museums, hold intellectual games.

It should be noted objective difficulties which participants of the Olympiad meet. Talented students spend almost whole month on trips to other cities, therefore, they pass lectures, practical and laboratory researches, they failed to semester and course tasks in time. Therefore it is necessary to organize training according to the individual educational plan for them.

Efficiency of student preparation to the Olympiad is defined also by quantity, and, the main thing, quality of contacts (interpersonal interactions) the tutor – a student. Only the tutor who is perfectly owning the subject and sincerely wishing to teach the student all he knows, and spared no his personal time, can interest and inspire the student, make his activity purposeful, creative, fruitful. In the same way, only the student possessing certain abilities and diligence, aspiring to self-improvement, can apprehend useful information and successfully apply it to achieve maximum result in certain, often non-standard conditions.