Scientists taught here

2017 is the Year of Science, as proclaimed by the decree of the Prwsident of Belarus, Alexander Lukashenko, aiming to raise the status and role of science within the social and economic development of the country, and to create favourable conditions for scientific potential. This year, special attention is being paid to scientific achievements and the major role of the scientific community. Scientists' top achievements are to be publicised, as the Rector of the Researchers Training Institute of the National Academy of Sciences of Belarus, Doctor of Physical and Mathematical Science, Professor Igor Gancherenok, tells us.

Obviously, the Year of Science aims to promote awareness of the work of our scientific community, so we'll be hearing a great deal about scientists' successes. Let's talk about your Institute and its staff training. What are your goals and objectives?

In December 2001, the Researchers Training Institute was established at the National Academy of Sciences of Belarus. Its main objectives envisage integration of higher education and science, strengthening of ties between higher schools and academic scientific-research establishments, and staff training for Belarusian NAS scientific organisations. Over the past fifteen years, the Institute has become a unique national establishment of higher education, preserving and developing national and international
experience in the field of research training.

We position our Institute as a leading national and European research and education centre, focused on providing a full cycle of highly qualified scientific staff training, in accordance with modern high-tech needs. It also provides functions of additional education for the formation of innovative perceptiveness while encouraging responsible public stance among heads of scientific and educational institutions.

**What are the peculiarities of the Institute's work? Students study at higher educational establishments; however, the preparation of scientific staff is something different. Tell us more about training at the Institute.**

At the moment, the National Academy of Sciences is transforming into a major research and production corporation. New industries are launching countrywide, shaping the future of the economy, as highlighted by the Chairman of the Presidium of the National Academy of Sciences, Vladimir Gusakov, at the 5th All-Belarusian People's Congress.

Our Institute's development is in line with this strategy, promoting co-operation with scientific organisations, scientific-practical centres and public organisations, universities and other educational institutions, ministries and agencies. We're supporting socio-economic and cultural transformation, taking into account the need to raise the quality of services, including exports, and the standard of personnel development, through investment and motivation.

Our priorities include intensive formation of infrastructure, information openness and transparency, promotion of an effective image, and work with students, schoolteachers, and regional institutions to ensure that talented young people countrywide have access to elite education and research. We're keen on co-operation with international scientific and educational organisations and associations.

The European Institute of Innovation and Technology (EIT) can be viewed as a prototype for developing our Institute, since it aims to promote sustainable economic growth and the competitiveness of a united Europe, through the integration of the most promising areas of innovation, scientific-research and educational activity.

I'd like to stress that the EIT is promoted as a new model of interaction and synergy of science, education and business and is viewed as a symbol of the formation of a single European scientific space and a catalyst for the development of scientific-educational and innovative centres in the EU. We're studying other international models — including the Korea Institute of Science and Technology, the Graduate School of the Chinese Academy of Social Sciences, and the Massachusetts Institute of Technology. We're gathering the best foreign experience, for careful analysis.

**The importance of expertise in science seems to be on everyone's lips. Tell us about graduates of your Institute. Where do they tend to end up working?**

Our graduates are masters of science. Our modern post-graduate Master's degree is unique and offered across the following specialties: biology, art, engineering, engineering science, applied mathematics and computer science, sociology, physics, chemistry, economics and economic
management. The list is constantly expanding and new programmes added — primarily those relating to innovation. We’re eager to invite foreign experts into our training programmes, to help plan the curriculum and create textbooks in English, as well as educating foreign personnel. Our curriculum includes such subjects as ‘philosophy and methodology of science’, ‘foreign language’ and ‘fundamentals of IT’. Candidates’ exams and differentiated tests are envisaged.

Undergraduates study specialised subjects, have practical studies and are actively engaged in research work. Among our lecturers and supervisors are doctors and candidates of sciences, leading scientists and specialists of academic organisations, experts, and professors of Belarusian universities. We invite acting members and corresponding members of Belarus’ National Academy of Sciences, to act as supervisors of Master’s programmes, which helps in our quality assurance system. We monitor constantly, to ensure steady improvement of our educational processes and to find new ways of developing undergraduates’ artistic potential.

Our Master’s programme concludes with the defence of a Master’s thesis, aimed at solving a real scientific task or problem, as part of the Belarusian NAS’ innovative production (often, as part of national or international projects). State examination commissions and our scientific staff annually acknowledge the high level of knowledge shown by our graduates, their deep understanding of their subjects, the relevance of their research and their creative approach to solving problems.

As a rule, over 80 percent of students receive the highest scores in their final certification. We produce winners in the ‘100 Ideas for Belarus’ competition, participate in international grants, make unique creative discoveries, register patents, and release publications in leading national and international editions. We demonstrate the maturity of our Master’s degree holders, as well as their professional analytical and research competencies, enabling them to successfully work in scientific organisations, state management bodies and the private sector. Most of our graduates begin their careers at institutions of the Academy of Sciences, with over half (the highest rate in the country) successfully entering post-graduate courses.

As never before, applied science is coming to the fore. Does your curriculum reflect this? How is the educational process oriented to modern ‘challenges’?

The educational process at the Institute is inextricably linked to priority research areas, as defined by the state. Our strategic objectives follow those of the Belarusian NAS, for the complex prognosis of sci-tech progress and priorities for Belarus’ scientific-technical activity until 2020.

These are of fundamental importance for the sustainable and dynamic development of the modern state.

We must remember that modern science and education are developing in the context of global challenges, instability of values, and large-scale inter-state and dynamic integration processes. With this in mind, we’ve optimised the scientific and educational process, while intensifying international co-operation. We’re creating a system of additional education, ensuring professional scientific communication in Belarusian and Russian for foreign citizens. We advocate the clustering of educational programmes as part of the ‘University 3.0 — Science, Education, Innovation’ paradigm. The Institute has been integrating science and education for many years, as part of its liaisons with scientific organisations, sharing joint scientific equipment and resources, to promote scientific-methodical and material-technical logistics.

Tell us about the period of education at the Institute.

We offer educational programmes of various duration, from one-day seminars and week-long improvement courses to a one-year Master’s degree and three-year post-graduate courses. We aim for a full cycle of research training, to nurture professional interest, promote achievement and maintain professional competence in research and innovation. Continuity and succession are important.

Is there any specialisation at the Institute? Which research areas are most popular with students?

We train researchers to ensure the intellectual security of the state, aiming to make science the foundation of the econo-
We have a unique opportunity to invite full members and corresponding members of the NAS of Belarus supervisors of Master’s programs. All this works for the development of the creative potential of graduates and the quality of knowledge

In recent years, optimisation has become the trend. The world is looking for optimal solutions to crisis situations. It’s difficult to find these solutions, and much depends on training. How is the Institute responding, and what success has it seen?

Our ‘formula’ unites scientific and educational values: truth, progress and responsibility. We encourage sensibility to innovations and focus on achieving results. The key to success rests on intense creative work, as we’ll pursue in the Year of Science. I admire the words of Grace Hopper, born 110 years ago, and who became a Rear Admiral. As a mathematician, she also wrote the first programming language. She said: ‘A ship in port is safe, but that’s not what ships are built for.’

As regards our search for optimal solutions, academician Vladimir Gusakov recently stated in an interview that ‘Nothing is impossible in modern science. Only reasonable compatibility is needed.’ In my view, the latter is the optimum solution.

Our scientists have been working with foreign colleagues on joint programmes. Does the Institute’s programme place emphasis on this?

We’re developing Master’s programmes unique within the European region; these enjoy significant export potential. Our partners include leading universities in Europe and Asia. E-health, nano-materials and nanotechnology, additive technologies and renewable energy are highly sought after in the world of training, so we’re offering and developing these.

What kind of training programmes does the Institute offer to foreign students, and what are the conditions of training?

English speaking foreigners have the opportunity to study, prepare research and a thesis in English, choosing from forty-seven post-graduate courses, across scientific, technical and humanitarian areas. It’s the widest choice in the country.

We’re developing English language Master’s degree programmes. The Institute is on the list of universities recommended by the Ministry of Education to foreign institutions (so that, for example, Chinese students are encouraged to come here to study). With tutors and leading scientists from Belarus’ National Academy of Sciences, we’re developing research topics for future foreign post-graduate students, placing them on the official website of the Institute. We offer training courses in Russian and Belarusian as foreign languages, as well as major subjects for entering Belarusian universities.

Of course, the international character of modern scientific research should promote academic mobility, for students, young scientists and professors. We focus on interacting with foreign partners and embassies — to ensure training abroad, participation in international scientific competitions and realisation of joint research grants.

The Year of Science has just begun but time is passing rapidly. Probably, some preliminary plans are available. What’s being done to ensure the year is a success for the Institute?

The Year of Science is to be a time of active and systematic work to develop the Institute. As regards luck, we strive to conform to the idea formulated by the great Russian surgeon, naturalist and educator, Nikolay Pirogov, who said: ‘It’s impossible to distinguish between education and science at a university. Science shines and warms — even without education. In turn, education — without science — only shines, no matter how attractive its appearance.’

In other words, we should be noticeable and successful, competitive and efficient. We must train our intellectual elite, ensuring dynamic and sustainable development of our modern, young independent state. Following the President’s words, we’re focused not simply on training scientific staff but ‘scientists able to produce something great’.

By Vladimir Mikhailov