The presentation of students projects
December 20, 2013

NEWSLETTER
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Skoltech

Skolkovo Institute of Science and Technology

Edward Crawley,
President of Skoltech

Dear Friends,

The past two months have been full of events for Skoltech.

On **December 11, 2013**, a meeting of Skoltech Board of Trustees was held in the Hypercube. During the meeting, the launch of the new Center for Research, Education and Innovation (CREI) "Comprehensive research center in the field of hydrocarbon production" was announced. Professor Iskander Akhatov (Faculty of Mechanical Engineering, University of North Dakota) was appointed as the director of the Center. Arkady Dvorkovich, Deputy Chairman of the Government of the Russian Federation, was unanimously elected as a new member of the Board of Trustees.

On **December 20, 2013**, students presented projects that they had prepared over the previous six days of the semester. The objectives put forward were finding solutions to China's contemporary energy problems.

From **January 13 to February 1, 2014**, the ISP Program (Independent Study Period) was held for the first time in Skoltech. Students had the opportunity to become acquainted with the optional subjects that did not enter the Institute's program, as well as to try themselves as teachers. In addition to such courses as "Web Development", "Lego Robotics Car Competition" and "Introduction to Linear Algebra", the program included courses like "Science and Art", "Geography and Cooking", and even "Ballroom Dancing".

On **January 20-21, 2014**, the first module of CDIO Academy program with Skoltech's participation took place at Chalmers University of Technology (Gothenburg, Sweden). CDIO (Conceive, Design, Implement, Operate) is an international initiative to implement practice-oriented approaches to engineering education. Today, the CDIO program covers more than 100 universities around the world. The CDIO Academy is a program for faculty teachers, staff and university executives, designed to implement the practical aspects of CDIO principles in the educational process.

From **January 26 to February 1**, Skoltech Professor Konstantin Severinov, together with the Institute's students, participated at the Winter Scientific School "Modern biology and biotechnology of the future 2014" in Zvenigorod.

From **January 31 to February 2, 2014**, Skoltech Hackathon 3.0 was held at the Knoket Center for Youth Innovation Creativity (CYIC). This third Hackathon for Skoltech students was devoted to the development of embedded electronic systems. It became part of the international Hackaton Emecs-thon, which this year was held in parallel, in real time, in six countries: Germany, England, Norway, Romania, Palestine and Russia.

You can learn more about these events in the issue below. In addition, via our Newsletter, Skoltech students will share their impressions of the pilot year of studies at the University of Groningen (Skoltech's partner). In addition, you will learn about the ongoing construction of the first phase of the Skoltech campus – a unique new generation educational and research complex.

The semester has just begun. Many exciting events are yet to come. You can learn about them in the coming issues of the Skoltech Newsletter.

Sincerely yours,

Edward Crawley,

President of Skoltech

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Board of Trustees@Skoltech

Final meeting of Skoltech Board of Trustees in 2013

On December 11, 2013, a meeting of Skoltech Board of Trustees was held in the Hypercube (Skolkovo Innovation Center, building 1). The meeting approved the strategic university development plan 2016, as well as the institute's operating plan and budget for 2014. A separate discussion was dedicated to the project for the development of the institute until 2020 within the state programme called The Economic Development and Innovation Economy. SkolTech Development Project gained full support from all members of the Board of Trustees and was approved unanimously.

Among the participants were Deputy Prime Minister of Russia Arkady Dvorkovich who was unanimously elected a new member of Skoltech Board of Trustees. So, the Board comprises 16 members. The Board includes representatives of the scientific community, industry, government and business.

"It is a great honour for me to join the team of the Board of Trustees of the Skolkovo Institute of Science and Technology. I believe that by uniting our efforts we will succeed in making the activities of Skoltech a driver of the development of Russia's innovation system, industrial capacity and growth of the international reputation of Russian science," said Arkady Dvorkovich.

At the meeting, Skoltech President Edward Crawly reported to the members of the Board of Trustees about the key achievements of the Institute, the educational and research processes at Skoltech, the links between science and industry, and the development of innovative entrepreneurship.

For more information about Skoltech visit our website www.skoltech.ru

Board of Trustees@Skoltech

Arkady Vladimirovich Dvorkovich
He was born on March 26, 1972 in Moscow. In 1994, he graduated from the Faculty of Economics of Lomonosov Moscow State University, majoring in economic cybernetics. In 1994, he obtained a master's degree in economics from the Russian School of Economics. In 1997, he obtained a master's degree in economics from the Duke University in North Carolina (United State). Since 1994, he has acted as an advisor, senior expert, general director, and research supervisor of the Economic Expert Group of the Ministry of Finance of Russia. Since 2000, he has been an expert of the Center for Strategic Research. Since August 2000, he was an advisor to the Minister of Economic Development and Trade of Russia. Since 2001, he was Deputy Minister of Economic Development and Trade of Russia From 2004 to 2008, he was head of the Expert Department under the President of Russia. From 2008 to May 2012, he was an assistant to the President of Russia. On May 21, 2012, the President of Russia appointed him the Deputy Prime Minister of Russia.

Iskander S. Akhatov was born on August 18, 1956 in Ufa. In 1979, he graduated from Lomonosov Moscow State University. Work experience: assistant (1983–1985), associate professor (1985–1990), head of department (1991–2001) of Bashkir State University; head of laboratory (1994–2000), director (since 2000 r.), chief research fellow (since 2003 r.) at the Institute of Mechanics of RAS Ufa Research Center, and since 2003 – lecturer at North Dakota State University (United States). From 1993 to 2000, he was deputy chairman of RAS Ufa Research Center. Areas of research of Iskander Akhatov: nanotechnology, fluid and gas dynamics in multiphase systems and non-Newtonian fluids, nonlinear dynamics and acoustics in bubble media. He created the theory of non-stationary modes of combustion and detonation of porous explosives, developed the theory of quasi-local symmetries of equations of mathematical physics; studied mechanisms of chaotic oscillations in the hydrodynamics of non-Newtonian fluids; created the theory of nonlinear interaction of acoustic waves in bubble systems; studied physical mechanisms of supercompression of gas bubbles and bubble clusters. The Skolkovo Institute of Science and Technology (Skoltech) is a private graduate research university in Skolkovo, Russia, Moscow region. Established in October 2011 in collaboration with MIT, Skoltech educates global leaders in innovation, advances scientific knowledge and fosters new technologies to address critical issues facing Russia and the world. Applying international research and educational models, the university integrates the best Russian and international scientific traditions with twenty-first century entrepreneurship and innovations.

"Currently, Skoltech's principal objective is building an international scientific community of its own," emphasized Edward Crawley. "Jointly with its key partners that include MIT, Moscow Institute of Physics and Technology, Saint-Petersburg State University, and other leading global educational and research centers, we have identified the desirable objectives, development direction and initiatives of the Institute. Besides, a joint action plan to implement the development program has been drafted and the expected results have been determined."

At the meeting, it was announced that a new center of science, innovations and education called Complex Center for Research in Hydrocarbon Production will be launched, and Prof. Iskander Akhatov (Department of Mechanical Engineering, North Dakota State University) was approved to the position of director of the center. Its areas of activity will include research, professional training and innovations in the field of exploration and development of non-traditional and hard-to-recover hydrocarbon reserves.

Students@Skoltech

Autumn semester ended on December 20, 2013 with presentation of students' projects

Opening the meeting, Mats Hanson, Dean of Education, summarized the results of the academic semester and reported about the achievements of students and professors over the last months.

The presented projects were educational innovative projects that the students invented during the last six days of the autumn semester, supervised by Skoltech professors. Each of 8 projects was assigned to a group of students. Optimization and modelling of coal, oil, gas, energy and other systems by the example of one country was the main topic. China, to the economy and industrial development of which a separate module was dedicated during the academic semester, was chosen to be such country.

The presentation of students' projects at the end of a semester is a landmark event in the institute's life. It is attended by all students, faculty members and other staff. This time, the presentation was also visited by professors from other universities, experts in related fields, representatives of industry, as well as researchers and representatives from the Skolkovo Innovation Center. MIT Professor Amy Glasmeier, who taught the energy module during the autumn semester, was also present, though remotely. After presentations, she said: "I am absolutely satisfied with the results! Evaluating the level of the projects, I can say for sure that the knowledge of Skoltech students will be appreciated highly wherever they go.» Janusz Bialek, Skoltech Professor and Director of Power Systems Center for Research, Education and Innovation (CREI), supported Amy by saying that he was amazed with the level of the students' projects.

Among representatives of Russia's industry who attended the presentation were Z.D. Dibrov, Head of Innovative Development Department, JSC RAO ES of the East; V.N. Fedorov, Head of Department for Innovation, Technical Policy and Energy Efficiency Improvement, JSC Russian Grids; A.E. Tumanin, Head of Innovative Development Unit, JSC Russian Grids; Y.A. Kulikov, Head of Innovative Development Unit, JSC SO UES; S.P. Chekletsova, Deputy Director for work with educational establishments, JSC SO UES; and V.V. Boyarkin, Leading Expert, Directorate for Information and Analytical Products and Methodology, CJSC Energy Forecasting Agency.

Following the official part, all guests and participants actively participated in a discussion of students' projects at individual booths. The discussion was held in the form of personal conversations and consultations with trade professionals and experts.

The students thanked their tutors and each other for their efforts and work done. Skoltech's master's student Boris Urman (IT) said: "On behalf of all students, I'd like to thank Skoltech team of professors – you are the best, as well as the organizers for organizing this remarkable event! It was great, thank you very much!

The next presentation of students' projects will be held at the end of spring semester 2014.

Fore more information about Skoltech students projects contact Ivan Khlebnikov, Director for Development, Director of Skoltech Endowment foundation: khlebnikov@skoltech.ru

The presentation of students projects. December 20, 2013

Students@Skoltech

Mats Hanson at the presentation of students projects. December 20, 2013

Interview@Skoltech

Yevgeniya Galanicheva, Kseniya Myacheva and Alina Chernova, three students at the Skoltech Biomedical Programme, talk about their pilot year of studies at the University of Groningen.

Yevgeniya Galanicheva

The University of Groningen is a higher educational establishment, combining ancient European academic traditions and the most advanced educational and research practices. We study at the UMCG (University Medical Center of Groningen). It combines in one place – a hospital, research laboratories and academic buildings. The advantage of this mutually complementary system is the proximity of science and patients. Apart from the purely fundamental research, UMCG gives its students a great opportunity to study diseases using the patients' biomaterials. Scientists and doctors work together to solve real practical problems.

Russian students are on cover of Groningen newspaper

UMCG is also called the "centre for healthy aging", as one of the main topics, studied in many laboratories of UMCG is the mechanisms of aging. The goal is to ensure that people at the age of 80, can feel as if they were 50. Today, the problem of the aging population is important not only for the Netherlands, so this topic connects UMCG with many laboratories in the world.

The academic year is divided into two periods: during the first semester we followed presentations, workshops and practical course activities; in the second semester each student started working in the laboratory on the selected subject. My project relates to the research on the dysfunction of the hematopoietic stem cells (the stem cells that build the blood cells), which, in particular, could cause blood cancer.

Kseniya Myacheva

Our training takes place as part of the Topmasterstudents programme. Instruction is in English because most of the students are foreigners. We are engaged in the direction of Medical and Pharmaceutical drug innovation. We do not have any particular subjects; all the lectures are connected to a particular scientific activity of a scientist. Each week is devoted to a specific topic. For example, a week of immunology, stem cells, genetics, etc. Each section ends with a small team project. This is either a comparative critical analysis of the key articles, or a report on the results of practical work. Our programme has a research nature. In addition, we had the opportunity to meet with scientists, who have their own businesses, based on the results of their research. There were several lectures on drug development, on preclinical and clinical trials, related to the promotion of medicines in the market.

One of the main qualities, which we are developing here, is the ability to work in teams. Indeed, when you see the last slide of the teacher's presentation with an impressive list of worldwide partner laboratories, you realise that in the modern scientific process, networking is an essential part of any thriving laboratory.

At the end of the first semester we chose the lab where we wanted to work for the following 6 months. I'm currently working on my half-yearly project at the Department for Molecular Pharmacology where I study molecular processes of chronic obstructive lung disease and seek the treatment for it.

Alina Chernova

Every time we go to the library through the hospital building, we meet strolling patients, carrying their droppers. It is very important to see why you are learning and working. At a certain moment, you come to understand that ultimately, you are not dealing with what you have in the vitro, but with a person, who is in the ward.

We study with students from 10 countries from all over the world. It is interesting to compare the different approaches to learning, different experiences, and different habits. The Dutch, for example, are very strict about being late, much stricter than most of the Moscow teachers. In addition, of course, it is funny to share with each other stereotypes about other countries, and we happily discover that most of them are not true!

The tour to Mouse Facility in UMCG

Groningen is a very small, charming and picturesque old town – and, in my opinion, the most bike-oriented town in Holland! We had to buy bikes on the second day of our stay here, and now we are so used to them that even if it is a five-minute walk, we will ride our bikes.

The main winter holiday is not Christmas but Sinterklaas – St. Nicholas Day. It is celebrated on December 5. Each year, the official Saint Nicholas arrives in one of the Dutch cities. This year he came to Groningen. Also we were are lucky to study at the University of Groningen in its anniversary year: in May there would be a lot of great celebration events for 400 anniversary of the University

In October we got the opportunity to see the official opening of ERIBA building (European Research Institute for the Biology of Ageing). The Institute is Skoltech partner at the creation of the Skoltech Center for Stem Cell Research (CREI). This six months I will work at ERIBA. We are studying the affect of membrane nucleus proteins in the mechanisms of ageing based on the yeast model.

For more information about Skoltech admissions process, contact the Office of Student Affairs: admissions@skoltech.ru

Campus@Skoltech

The Skoltech Campus is a unique educational and research complex of a new generation

Skoltech campus will open its doors in 2015

The construction of the first Skoltech campus, the so-called Eastern Ring, is in progress. The construction of the building facility will be completed by September 2015. Project Architect is Herzog & de Meuron Architecture Studios, a Pritzker Prize winner.

Eastern Ring of the Skoltech campus will bet a complex of buildings with a total area of 133,000 square meters, which will include classrooms, administrative and academic offices, rooms for conferences and seminars, a student center, library, recreation area, dining-halls and cafes, as well as research laboratories. The complex's equipping and designing are being carried out in accordance with the highest international standards.

"Eastern Ring will fully serve as a campus, all Skoltech premises will move there," said Gary Wentworth, Director of Planning and Construction of the Skoltech Campus. "The complex actually has several functions: educational, research, administrative, social, as well as auxiliary – dining room, small retail, and a café."

"Today, many research breakthroughs occur at the junction of several scientific fields. Thus, one of the tasks of planning is the creation of a favorable environment for interdisciplinary research. Research centers and laboratories are not isolated from each other, and will operate in a complex, in collaboration, in constant communication with each other," – says Gary Wentworth.

"Apart from the regular classrooms and laboratories, there will be classrooms equipped with interactive

Gary Wentworth, Director of Planning and Construction of the Skoltech Campus

For more information about the Skoltech Campus contact Gary Wentworth, Director of Planning and Construction of the Skoltech Campus: wentworth@skoltech.ru

Campus@Skoltech

communication systems connecting them to scientific laboratories in the Skoltech campus. In an interactive classroom, several groups of students will be able to simultaneously work on solving large complex problems, using video cameras to keep in touch with laboratories, to monitor the processes occurring there, to take the readings of laboratory equipment. The campus will also be provided with the so-called 'kohortspace' – workshops in which students will be able to manually construct models and prototypes of their technical developments." Another feature – a small percentage of the auditoriums are intended only for lectures.

"The main learning process will occur in the laboratories. There are very few classic lecture halls, in terms of percentage. Skoltech students are Masters level students. This is quite another level. Many of them have already come to the University with their research projects. Learning occurs during the work on real research projects – and this, of course, is reflected in the planning," said Yuri Starodubtsev, chief architect of Skoltech.

Skoltech campus construction will be carried out in accordance with the basic trends of the Skolkovo Innovation Center – energy efficiency, ecology and internationality. In the campus, as well as throughout the Innovation Center, low-rise buildings will prevail. Preference will be given to pedestrians and cyclists. There will be little road transport and all cars will be electric. The entire project is based on so-called "green construction". Buildings' compliance with modern requirements of environment and energy efficiency is certified by specific organizations.

By 2020, 2,772 people will have studied in the building. Of these, there will be 1,252 students, 440 postdocs, 200 teachers, and 200 researchers.

"The Skoltech Campus will harmoniously fit into the Skolkovo ecosystem. It will become a kind of heart of the Innovation Center. A place where innovations will emerge," said Gary Wentworth.

The Skoltech Campus is a university campus, where all Skoltech premises will be located, except residential apartments for students and teachers. According to the design, the campus will consist of three contiguous complexes: Eastern Ring, the central part, so-called Agora, where the administrative center of the University will be situated and the Western Ring. The Skoltech Campus is a unique and unparalleled Russian educational and research complex of a new generation, designed to create on the territory of the Skolkovo Innovation Center a favorable educational, scientific and innovative environment that will attract talented young innovators and leading scientists from around the world.

CDIO@Skoltech

Workshops "CDIO Academy in Russia" go on

On 16-17 January 2014 Mikhail Myagkov, Skoltech Vice President for Academic Affairs, attended the European Regional CDIO Meeting, held at Chalmers University of Technology in Gothenburg, Sweden.

CDIO Collaborators, universities' directors and managers deans, faculty members, engineering industry leaders, community organizations gathered together to discuss challanges of CDIO implementation process.

Mikhail Myagkov presented the program of implementing CDIO principles at Russian universities called "CDIO Academy in Russia"

The program is a joint project created by Skoltech and Tomsk Polytechnic University (TPU). Mikhail highlighted main goals, program structure and the folowing implementation steps of CDIO principles in Russia. He put forward seminars and courses held by Skoltech in the program's framework.

"Implementing and adopting CDIO any educational institution achieves dual-impact goals: on the one hand, it implements an education model framework stressing engineering fundamentals, based on CDIO context of the Conceiving — Designing — Implementing — Operating process; on the other hand, it creates a new philosophy of engineering education. And the achievement of the second goal is even more important than the first one" – said Mikhail Myagkov.

"CDIO Academy in Russia" consists of 5 modules involving three face-to-face sessions and two webinars. The first module of "CDIO Academy in Russia" was held on 20-21January 2014 at Chalmers University of Technology in Gothenburg Sweden. The session proved to be a great opportunity for participants to analyse the best practices of the CDIO Standards implementation, to communicate with experts with great international experience implementing CDIO into the training process, to clarify the program value, key process steps and expected outcomes.

The second module will be held on 20 February in the webinar form. Representatives from 12 Russian technical universities will take part in it. The topic will set the implementation of educational programs based on the CDIO approach.

The final module will be held in May 2014 at Skoltech and ended in the CDIO RUSSIA 2014 conference. Morethan 20 leading engineering institutions of Russia are expected to participate in the program.

For more information about "CDIO Academy Russia" contact Mikhail Myagkov, Vice President for Academic Affairs:
myagkov@skolkovotech.ru

Mikhail Myagkov, Vice President for Academic Affairs

CDIO@Skoltech

The Worldwide CDIO Initiative is an nnovative educational framework for producing the next generation of engineers. The framework provides students with education stressing engineering fundamentals set in the context of Conceiving - Designing - Implementing - Operating real-world systems and products. Throughout the world, CDIO Initiative Collaborators have adopted CDIO as the framework of their curricular planning and outcome-based assessment.

The CDIO concept was originally conceived at the Massachusetts Institute of Technology in the late 1990s. In 2000, MIT in collaboration with three Swedish universities - Chalmers University of Technology, Linköping University and the Royal Institute of Technology - formally founded the CDIO Initiative. It became an international collaboration, with universities around the world adopting the same framework. The Initiative was created in response to employers' dissatisfaction with the fact that university engineering education was too far away from practice.

To the current date, more than 100 higher education institutions from 30 countries of the world have joined the CDIO Initiative. In Russia, the CDIO members are: Tomsk Polytechnic University (since 2011), the Skolkovo Institute of Science and Technology (since 2012), Astrakhan State University (since March 2012), Moscow Aviation Institute (since October 2012), the Tomsk State University of Control Systems and Radioelectronics (since March 2013) and the Moscow Institute of Physics and Technology (since April 2013).

The first module of "CDIO Academy in Russia" January 2014


The first module of "CDIO Academy in Russia" January 2014

The Eroupean Regional CDIO Meeting January 2014

Biomedicine@Skoltech

Skoltech supports the winter science school «Modern Biology and Biotech of the future»

Konstantin Severinov, Skoltech Professor

Skoltech Professor Konstantin Severinov participated in giving a lecture on "Structure-functional analysis of bacterial transcription regulation" to a packed auditorium of participant at the winter science school «Modern Biology and Biotech of the future».

The school was held on January 26 – February 1, 2014 in Zvenigorod, Russia. In his talk, Konstantin presented various aspects of the analysis on bacterial RNAP structure and function, the mechanisms of gene expression uncovering new biosynthetic compounds and antibiotics.

He focused on genomic analysis of bacteriophage and viruses development at gene expression as well as the effect of thermal fluctuations on bacterial diversity of viruses. The lecture put forward a broad array of inhibitors of bacterial growth and interaction of DNA gyrase.

The Professor also addressed the audience with key trends and innovation perspectives in science and Skoltech value of teaching young specialists in biomedical area. The participants learned about the SKoltech concept – Skoltech Centers for Research, Education and Innovation (CREI). In particular, Prof. Severinov highlighted the Center for Stem Cell Research, its targeted research areas and expected outcomes of the innovative intensity of Center's research.

"International integration fosters the key concept of CREI function. It unites leading researchers from multiple areas, universities and labs, enabling participants to work jointly and individually," - said Professor Severinov.

Evgeniy Frolov, Skoltech student (IT Master's program) together with Professor Severinov attended the science school. In the framework of informal communication with potential students he shared his educational experience.

"Presenting Skoltech advantages participants got more interested in it. In my opinion, the school proved to be a great opportunity to present Skoltech and attract new targeted students. What matters above all is to engage real people - Skoltech professors and students, who are ready to share their opinion and experience speaking at lunch time. The level of grade is much higher then"- said Evgeniy Frolov.

This is the fourth school from the course session "Modern Biology and Biotech of the future". More than 80 graduate and undergraduate students, young scientists and businessmen engaged in the biological sciences, took part in the science school.

Among lecturers are outstanding scientists, who work in Russia and abroad. Except for Konstantin Severinov, the other members were Mikhail Gelfand, vice-director for science of the Institute for Information Transmisison Problems of the Russian Academy of Sciences and professor at the Faculty of Bioengineering and Bioinfrormatics of the Moscow State University; Victor I. Tsetlin, Doctor of sciences, professor, corresponding member of the academy of sciences; Boris Zhivotovsky, Professor at Karolinska Institute, Head of Unit in Molecular Mechanisms of Cell Death at the Institute for Environmental Medicine, Karolinska Institute.

The main aim of the science school is to mainstream the knowledge and skills of young scientists in molecular biology, bioinformatics and biotechnological business, to explore ways of research outcomes into a market-demanded product.

In its context the school held except lectures interactive activities as poster sessions, foresights, workshops and round tables. This promotes dialogue between participants and speakers. This opens up enormous opportunities for creating and implementing new ideas, networking and establishing new business connections.

For more information about Skoltech admissions process, contact the Office of Student Affairs: admissions@skoltech.ru

Biomedicine@Skoltech

The Winter Science School «Modern Biology and Biotech of the Future». Zvenigorod. January 2014

The Winter Science School «Modern Biology and Biotech of the Future». Zvenigorod. January 2014

Independent Study Period@Skoltech

Skoltech students successfully met all challenges at ISP

From January 13 to February 1, 2014 the ISP (Independent Study Period) was held at Skoltech for the first time ever. Master's students received the opportunity to gain a deeper insight into the interested subjects beyond the main educational programme and even to test themselves at teaching. The ISP schedule was based on students' preferences. The more people apply for the particular subject then the higher the chance of being added to the schedule and getting more hours and days for the selected topic is. The subject scope was only bound to the rules of ethics issues and common sense.

This year, in addition to such courses as "Website Development", "Lego Robotics Car Competition" and "Introduction to Linear Algebra", the Curriculum also includes "Science and Art", "Geography and Cooking" and even "Ballroom Dancing".

The Program's organizers suppose a subject course not related to the Skoltech area of specialisation improves initiative, integrity and creativity.

ISP at Skoltech is the way to adjust the similar education practice used by MIT.

"At the end of the programme, I will manage to share my recommendations based on MIT experience for the following ISP round", said Chris Randall, Instructional Developer at MIT-Skoltech Initiative, who supervised the implementation of ISP program at Skoltech."

One of the brightest events of the ISP was the students' meeting with the Prime Minister of the Russian Federation. Dmitry Medvedev visited the MISIS National University of Science and Technology (partner university of Skoltech), where he became acquainted with projects of toys, created by students of Skoltech for orphans within one of the courses of the ISP, which took place in the digital manufacturing laboratory of FabLab MISIS.

Students were divided into five groups and created an "Airship" – a prototype of a radio-controlled aerial game, creative rackets for hand ping-pong with holes named "Play and Dream", a mobile construction set named "Little Engineer", an art set called the "tablet for children or small artists", as well as a board game called "Dubovikboks". When creating the toys, the students made use of a 3D printer, milling machine, laser cutter, plotter and other equipment from the FabLab laboratory.

Dmitry Medvedev became acquainted with the prototypes of the toys and even tried to play with them. The quality of the projects, and the very idea of Skoltech students using their technical knowledge in order to bring joy to children, made a positive impression on the Russian Prime Minister.

Also as part of the ISP, postgraduates visited the companies Google and Yandex.

"Students learned about these companies from the inside, getting unique information "first hand" from their managers. In addition, during these visits we discussed opportunities for our students to have internship in these companies," – announced Maxim Kiselev, director of leadership programmes at Skoltech.

The ISP also offered courses aimed at promoting entrepreneurship skills. The course "Entrepreneurship and Smart Investing" set a challenge task to the participants to increase the start-up capital in any possible way by one thousand rubles. The other course was called "Elevator pitches". During the course the master's students showed mini-presentations of their projects in front of random passengers in subway trains.

And, certainly, technical courses amounted for a high proportion of the program: one of them was "Lego Robotics Car Competition". During the exciting engineering course students assembled from LEGO and industrial details just within a week an unmanned radio-controlled mini-car with a capacity to carry out some complex functions: to share real-time video with anybody, to determine your position in space, etc.

For more information about Independent Study Period at Skoltech contact Madina Tyuryaeva, Senior Project Specialist for Education: tyuryaeva@skoltech.ru

Independent Study Period@Skoltech

"This course is a good way to undergo series of engineering lessons and apply this knowledge in practice", shared Alexei Boyko, lecturer for the course "Lego Robotics", Skoltech student. "We're creating a technically extreme complicated robotic system. This requires knowledge how to design such objects, how the real vehicle itself is technically equipped inside, its technical mechanisms, how the built-in electronics function, how to work on the microcomputers with LINUX and other interesting studies to join. Our training course addresses these requirements."

This year's ISP programme is over. The next will be held in one year's time – in January 2015.

Students received a strong initiative to show integrity and strive for being proactive, for better planning and efficient management. Moreover, the ISP became an excellent team building technique.

"I think it is a great idea to let students try their hand in teaching," said Boris Urman, a student of Skoltech (IT Programme). "When you play the role of the listener, classes are more interactive, because you are on an equal footing with the 'teacher'. When you teach yourself, you get an opportunity to choose the topics that you think are useful for the students and that are of interest to you. Well, of course, we all became good friends during these three weeks."

Prime Minister of Russia Dmitry Medvedev meeting Skoltech students. January 29, 2014

Hackaton@Skoltech

On January 31 – February 2, 2014 at Knoket Center for Youth Innovation Creativity (CYIC) Skoltech, Hackathon 3.0 was held.

This is students' initiative, which is based on Skoltech students' experiences of participation and victories at the Hackathon of Massachusetts Institute of Technology (MIT) in the U.S.A., as well as at the Skoltech Hackathon 2.0 (Moscow, December 2013).

This Skoltech Hackathon, the third for Skoltech students, was dedicated to electronics. It was held under the auspices of Emecs-thon, international Hackaton Embedded Systems, which this year was held in parallel, in real time, in six countries: Germany, England, Norway, Romania, Palestine and Russia.

The participants of Skoltech Hackathon 3.0 were representatives of three universities: Skolkovo Institute of Science and Technology (Skoltech), Moscow Institute of Physics and Technology, and the Bauman Moscow State Technical University. Eight teams were formed, but only five reached the final presentation stage.

During 48 hours, Hackaton participants created gorgeous designs and prototypes that were presented to a Russian and international jury.

"The idea of each project originated from a specific problem. That is why the success rate of each of them is so high," says Tigran Shakhverdyan, co-founder and executive director of the startup RoboCV, engaged in the creation of intelligent autopilots for transport.

The developed projects are simple things that are useful in everyday life. Thus, two teams offered their solution to improper body posture.

The first group of students made special braces, which give an opportunity to control and adjust the posture of a person. A miniature elastic tension sensor was mounted in the braces, which allowed seeing and assessing the degree of the spinal curvature at each time point.

The second team developed a draft of a smart chair: the system reads the data on a seated man in a special way, collects and analyzes the data and, consequently, allows controlling one's posture during the day.

Another team developed a prototype that allows performing real-time control over the flow and temperature of water in the cooler. This simple solution may be also applied for use in hydraulic systems where the water flow has to be calculated and forecast quickly.

Developed also was a prototype of a device that can be attached to any kitchen appliance, which allows determining the temperature of the food being cooked, the degree of preparedness, and other characteristics. Moreover, all data are collected on one device allowing

Skoltech Hackathon 3.0.
Febuiary 2014

Hackaton@Skoltech

EMECS-thon – is an annual marathon competition in the field of embedded systems; it is open to students of universities of the EMECS consortium, and partner universities. The event is organized annually and is held simultaneously in all the universities of the EMECS consortium, and in the partner universities.

to save receipt proportions of successfully cooked dishes by making a new one.

The last project was the prototype of an automatic alarm system. The device is equipped with a special face recognition camera, which responds to human movement and displays the image on the computer screen. The scope for possible application of the device is wide. The authors of the project talked, for example, how to use it in the garden and also offered an additional application method of the prototype if the Russian Ministry of Defense is interested in using it.

"I was greatly impressed by the projects presented at the Skoltech Hackathon today. The teams created excellent prototypes from scratch in just 48 hours, and then proved their suitability. The members of the jury expressed their ideas on the application or improvement of the prototypes, but I can confidently say that these were all great results," said Alessandro Golkar, Skoltech professor."

The team with the prototype of an automatic alarm system won the nomination of the "Best Technology Idea". The nomination of the "Best Business Idea" was won by the team that had developed special braces allowing for adjusting one's posture. A special nomination was awarded to the team that had developed a system for the control of water flow. The prototype of a smart chair, which also allowed improving one's posture, won the Audience Choice Award.

The team from Norway won the title of "EMECS-thon GURU". The Russian participants that created the project of posture corrective braces "Posture Guard" came in second. The prototype of this project was developed by three students of the Skolkovo Institute of Science and Technology: Rustam Akhtyamov, Oleg Urzhumtsev, and Boris Urman.

On Sunday eveining, 2 February, Skoltech Hackathon 3.0 ended in the award ceremonies of Russian winners and the international one. Following the official part the discussion continued in the informal atmosphere: the experts who attended the event offered the teams many valuable recommendations focused on the completion and further implementation of the projects.

Events@Skoltech


Skoltech Hackathon 3.0
Febuiary 2014


Skoltech Hackathon 3.0
Febuiary 2014


Skoltech Hackathon 3.0
Febuiary 2014

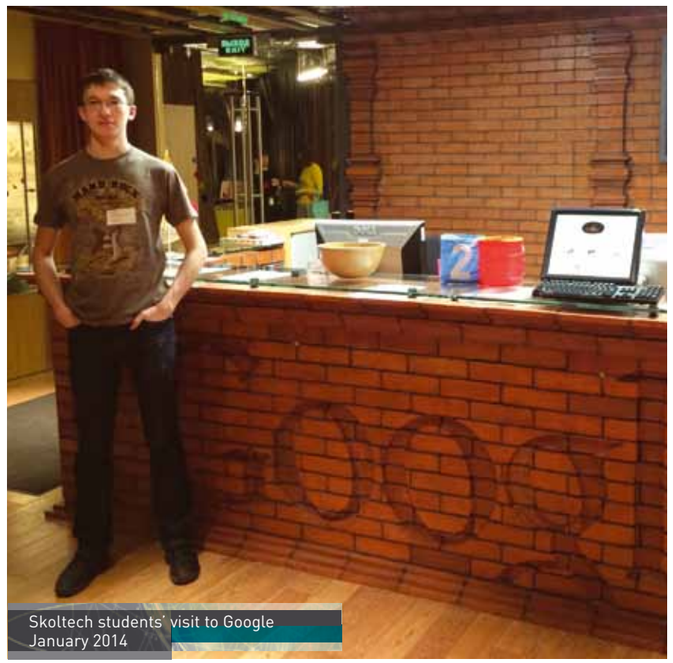

Prime Minister of Russia Dmitry Medvedev meeting
Skoltech students. January 29, 2014


In the digital fabrication facility
FabLab in MISIS

Events@Skoltech

The Eroupean Regional CDIO Meeting
January 2014


Skoltech students' visit to Yandex
January 2014


Skoltech students' visit to Google
January 2014


In the digital fabrication facility
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January 2014

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