

Skoltech President Edward Crawley (third from left) signing agreement with the Russian President and Dutch Prime Minister observing.



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NEWSLETTER
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Skoltech

Skolkovo Institute of Science and Technology

Welcome to Skoltech!

We are excited to share a few of the many new accomplishments that we've had across Skoltech in the past few months.

The biggest event in the Research Office is news that we have launched our first Center for Research, Education and Innovation (CREI). In Amsterdam, we signed a three-sided agreement with the Vavilov Institute of General Genetics (Russia) and University Medical Centre Groningen (Netherlands). The moment was topped off by the fact that Russian President Vladimir Putin and Dutch Prime Minister Mark Rutte attended the signing ceremony. As the CREIs will form the heart of Skoltech's research, education and innovation capacity, launching this first center is truly a momentous event for our university.

On April 11, we received acceptances from 47 excellent students into our M.Sc. programs in Biomedical, Energy, and Information Science and Technology. In March, the Student Affairs Office conducted two Selection Weekends, personally getting to know each student. We are very excited to welcome them into the Skoltech family.

Our Dean of Education Mats Hanson and a delegation from Skoltech presented our Master's curricula before an international panel at École Polytechnique Fédérale de Lausanne (Switzerland). The reviewers praised the work we've done and gave advice on how to continue improving the curricula before classes begin in September.

Finally, the Center for Entrepreneurship and Innovation launched an initiative to form connections among innovative universities. At the Massachusetts Institute of Technology (MIT), the Center held one in a series of workshops, bringing together scholars from four different continents. They plan to build connections to improve innovation practices in and outside of the classroom on campuses around the world.

These are just a few highlights of many achievements throughout the last months that are bringing the vision to life. We have an exciting future ahead of us!

Sincerely,
Edward Seidel
Senior Vice President for Research and Innovation



Edward Seidel
Senior Vice President
for Research and Innovation

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Students@Skoltech

Skoltech Will Welcome 47 New M.Sc. Students

Just one and a half years after being established, Skoltech admitted its second group of M.Sc. students, taking a key step on its path to educating the next generation of global leaders in innovation.

The 47 new M.Sc. students will join a pilot group of 20, who were accepted in May 2012. Together, they will launch Skoltech's two-year, English-language programs in Information, Energy, and Biomedical Science and Technology.

“I'm so impressed by the incoming students' level of talent and enthusiasm,” said [Mats Hanson](#), Dean of Education. “They are looking forward to an educational experience that bridges core research knowledge and innovation for producing an impact. It demands a special mind-set to take on global challenges, and this group fits that mold.”

The newly admitted class includes alumni from leading international universities, including University of Edinburgh, the Massachusetts Institute of Technology (MIT), Bilkent University, and Beijing University.

They also represent the best universities throughout Russia, including Moscow Institute of Physics and Technology, Moscow State Technical University (Bauman), Moscow State University, and St. Petersburg State University.

Incoming Students by the Numbers

47 M.Sc. Students

From

13 Countries

Graduating from

21 Universities

For more information about Skoltech students and admissions, please contact Bram Caplan, Director of Student Affairs at caplan@skoltech.ru or visit the admission's website <http://skoltech.ru/admissions>



Professor Konstantin Severinov answering students' questions after challenging them in an interactive lecture on biology.

Selection Process

The students underwent a rigorous, two-stage admissions process, designed to assess their academic abilities, leadership qualities, and ability to work in teams. In the first stage, over 550 students from 26 countries submitted applications, letters of recommendation and descriptions of their successes in academia and research. Skoltech then invited 70 semifinalists to custom-designed Selection Weekends.

During the Selection Weekends, Skoltech gained greater insight into each student's abilities and discerned whether they would be a good match for the educational experience bridging science and innovation.



Two prospective students working on the computer vision challenge.

On two separate weekends, the students in two different groups competed for the final spots in the program. They engaged in group activities, including science, engineering, technology, and design challenges as well as interviews.

During the challenges, students were broken up into groups of 4 to 6, where they engineered bridges, prototyped shock distributors, and conceptualized biomedical solutions for research problems.

Skoltech faculty and senior staff as well as MIT faculty and partners from the Skoltech Center for Stem Cell Research led challenges, conducted interviews and evaluated students.

In August 2013, the admitted students will engage in a one-month Innovation Workshop at MIT. Afterwards, 33 of these students will join the first pilot class of 20 students in Energy Science and Technology and Information Science and Technology programs.



Prospective students creating shock distributing devices during the Selection Weekend.

“Students are the core at Skoltech, and it is especially important in these early days of Skoltech to admit not only talented students but those who are the right fit with our mission and goals,” said **Bram Caplan** Director of Student Affairs. “In the Selection Weekends this year, the incoming class excelled throughout group activities, challenges, and interviews, and I am very excited to see them exceed our expectations even more here at Skoltech.”

The remaining 14 students will participate in pilot programs for Biomedical Science and Technology and Product Design and Realization. They will spend one year abroad at either the Massachusetts Institute of Technology (USA) or University Medical Centre Groningen (Netherlands) before returning to Skolkovo for their full two-year Master's program.

Research@Skoltech

Skoltech Finds the First Center for Research, Education and Innovation

April 8, 2013, during President Putin's visit to the Netherlands for the Russia – The Netherlands Bilateral Year 2013, Skoltech President Edward Crawley signed a three-sided agreement to create the first Center for Research, Education and Innovation (CREI) at Skoltech.



Members of Skoltech, University Medical Centre Groningen, and Vavilov Institute of General Genetics gathering in Amsterdam following the signing.

For more information about Skoltech's CREI Program, please contact Ivan Sherstov, Director of Research, at sherstov@skoltech.ru. Further information can be found at the Skoltech website: <http://skoltech.ru/research>

Main areas of research:

- Create transplantable stem cells from induced pluripotent cells (these cells can then form into various types of cells to assist in treating diseases);
- Develop patient specific cellular systems for drug screening and determine preclinical safety and efficacy of cellular-based therapies for handover to existing and new startup, high-tech biomedicine companies.

Skoltech Center for Stem Cell Research

Skoltech founded its first Center for Research, Education and Innovation (CREI) called the Skoltech Center for Stem Cell Research. The Vavilov Institute of General Genetics, Russia and University Medical Centre Groningen, the Netherlands, came together as leading partners in the CREI's creation.

At the heart of the CREI initiative is a powerful idea – that universities should identify issues of importance to commerce and society, organize international teams of scientific experts, and build a bridge from science to innovation that accelerates the ideas from the laboratory to impact.

Edward Crawley
President, Skolkovo Institute of Science and Technology

The Skoltech Center for Stem Cell Research will quickly place Russia on equal footing with global

leaders in biomedical research. The governmental support for the CREI will also ensure commercial development of promising discoveries made by the local researchers.

This center combines world-class expertise in multiple disciplines for advances in exciting areas of importance to society, from stem cells that promise a revolution in medicine, to big data, that is changing the culture and conduct of science itself. It will forge deep international collaborations between Russia and the Netherlands, a world leader in both biomedicine and in technologies such as high speed data networks needed to support 21st century research.

Edward Seidel
Senior Vice President for Research and Innovation, Skoltech

The researchers working within this research center will develop deeper insight into the science and applications of stem cells as well as the techniques to study them in a data-intensive world. These approaches will then lead to new therapies and drugs. Using this insight, the CREI will fast-forward Russia to the frontlines of research in key fields within biomedicine.

Each year, the Skoltech Center for Stem Cell Research will train over 20 students. Each graduate will possess leading knowledge in regenerative medicine and an excellent international network in this field to join Russian industry, universities, or start-up companies.

The center will also bring to Moscow leading international researchers in the field to conduct courses and training for industry, faculty and researchers. Previously, these individuals would have had no other recourse, but to search for expertise outside of the country.

By creating the Skoltech Center for Stem Cell Research, leading stem cell scientists can work towards common research objectives and help train the next generation of stem cell scientists. New insight into fundamental aspects of stem cell biology can furthermore lead to new therapies and drugs.

Peter Lansdorp
Co-Director, Skoltech Center for Stem Cell Research, representing University Medical Centre Groningen and the University of Groningen.

Education@Skoltech

On January 29 and 30, Skoltech organized a Master Curricula Review of educational programs in Lausanne, Switzerland, receiving external feedback on how to continue developing Skoltech's graduate-level curricula.

Over two days, an eight-member international panel reviewed Skoltech's Energy and IT Master's degree programs. The panel utilized their experiences from the US and Europe to share insight into how universities structure their educational programs. Specifically, the members represented École Polytechnique Fédérale de Lausanne (Switzerland), Royal Institute of Technology (Sweden), KU Leuven (Belgium), UNESCO, Aalborg University (Denmark), Imperial College London (UK), and Stanford University (USA).



President Edward Crawley and members of the international review panel in Switzerland listening to a presentation on the new curricula.

During the review, the reviewers responded very positively to the educational curricula giving advice and commended its current level of development. They also commented that the unique educational structure and content of the curricula would help attract good students.

The members also discussed the Entrepreneurship and Innovation component focusing on how to incorporate it into the curricula. During the discussions, Skoltech's leadership learned more about the entrepreneurial culture at Stanford and how this culture is fostered and supported at the university level. Experts from EPFL also shared the university's vision on internships with industry and how they are organized and assessed.

The panel pointed out that the balance between basic science and engineering courses as well as their integration into the overall programs could be improved.

Specifically they advised integrating ethics and sustainability into the programs as important themes for developing the engineering and society dimension.

“Those are prominent issues in the Skoltech Learning Outcomes Framework, but clearly we need more comprehensive documentation of the IT and Energy programs, to make it possible to review how well these and other topics are integrated,” said Kristina Edström, Skoltech's Director of Education.

The panel also encouraged plans for utilizing the asset of Skoltech's multi-campus structure by forming student collaborations with MIT on design-build activities.

Skoltech has received a full report from the international panel, and plans are already underway for both more internal and external planning and review meetings before the classes start in the fall.

“At Skoltech, we are uniting the best practices in engineering education from around the world, and only by engaging our peers and students are we able to reach that level of excellence we desire,” said Dean of Education Mats Hanson. “The response to the review was so positive that we would like to continue them on a regular basis in the future.”

For more information on Skoltech's educational programs, please contact Mats Hanson, Dean of Education, at hanson@skoltech.ru. Further information can be found at the Skoltech website: <http://skoltech.ru/education>

Innovation@Skoltech

Building Entrepreneurial University Workshop

On March 25-26, 2013, the Skoltech Center for Entrepreneurship and Innovation, the MIT Skoltech Initiative, and the Skolkovo Foundation led a two-day workshop at the Massachusetts Institute of Technology in Cambridge, MA to develop a vibrant community among entrepreneurial universities around the globe.

Part of a new series, the workshop brought together experts in the field of entrepreneurship and innovation. More than 50 scholars and practitioners from four continents identified opportunities for expanding collaborative curricular and extracurricular activities among leading universities in Russia and around the world.

The workshop aimed to develop a shared vision of university innovation and identify steps to cultivate innovative international university collaborations.

President Edward Crawley opened the workshop with an interactive session on developing a reference model for translating ideas into market products. Participants identified a long list of activities and procedures, that go between the idea and product, including prototyping, research, and operations. Through their collective work, they identified skills necessary to move ideas to impact, and realized these qualities can and should be taught to students at entrepreneurial universities.

“The goal is to move beyond the sharing of best practices to identify new ways to nurture entrepreneurial behavior in our institutions. And to work together to solve important problems for society and for industry,” said Professor **Charles L. Cooney**, faculty director, Deshpande Center for Technological Innovation (MIT). During the workshop, attendees had an opportunity to listen to success stories from universities in Singapore, Portugal, and U.A.E.

For further details about activities by the Center for Entrepreneurship and Innovation (CEI), please contact Ilia Dubinsky, Director of CEI, at dubinsky@skoltech.ru



Participants at the two-day workshop listening to lectures on integrating innovation practices within universities.

A key outcome was the announcement of funding to test several initiatives among the participating universities within one year. Proposals ranged from developing new models to accelerate the movement of research to products, to new venture formation, to projects providing new pathways for postdoctoral researchers.

Working in small teams, participants developed budget estimates and pitched ideas for eight pilot activities. The workshop attendees were invited to apply for funding in joint international teams. They were also asked to submit to Skoltech white papers, including underlying problems addressed, suggested solutions, and potential impact.

The workshop came to a close with participants committing to gather within a year to discuss and assess the proposed initiatives as well as identify further activities to build a network of entrepreneurial universities around the world.



President Edward Crawley giving a presentation during the Building Entrepreneurial University Workshop.

Industry@Skoltech

Improving the Market for Composite Materials

Skoltech and the Ministry of Industry and Trade organized a three-day conference on composite materials and improving their integration into the Russian economy during the end of January.

Representatives from academia, industry, and government met at Skoltech to discuss measures for improving and supporting the economic infrastructure for composite materials. Throughout their discussions, they focused on matters affecting suppliers, consumers and R&D centers.

One of the key seminars was conducted by the Working Group of the Inter agency Council on the Development, Production and Application of Composite Materials, founded by the trade ministry. The Deputy Minister of Industry and Trade Gleb Nikitin joined the participants as they discussed challenges facing the sector.

Representatives from academia both from Russia and abroad engaged in the seminar, sharing the difficulties they faced. Delft University of Technology (Netherlands), NPO Saturn (Russia), Moscow State University and the University of Dayton (US) were among those describing how to develop the necessary infrastructure for engineering composite materials.

Leading companies involved in composite materials also participated, including Holding Company Composite, Ruskompozit, Rosatom, RT-Chemcomposite, and the Center for Strategic Research North-West, and the Union of Composite Producers.

The aviation industry played a major role in the seminar with four industrial consumers participating:

- Central Aero-Hydrodynamic Institute Zhukovsky (CAGI)
- All-Russian Scientific Research Institute of Aviation Materials
- United Engine Corporation
- Russian Helicopters

“There are different views on how to organize engineering centers,” said [Vladimir Khlebnikov](#), first deputy general director of Holding Company Composite. “Composite and Rusnano are creating an ‘open’ R&D center, where any market participants can use the equipment primarily for carbon fiber products at minimal cost.”

Vladimir Khlebnikov also commented on the need to form a bridge between the manufacturers of materials, such as Holding Company Composite, and the end users of carbon fiber products.



Ilya Dubinsky speaking on a panel during the Building Entrepreneurial University Workshop.

For more information on Industrial Cooperation, please contact industry@skoltech.ru or visit the website at <http://skoltech.ru/industry>



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