



**UNITWIN/UNESCO  
CHAIRS PROGRAMME**

***PROGRESS  
REPORT  
2013-2014***

**UNESCO CHAIR  
In Higher Technical Education, Applied  
System Analysis and Informatics  
at the National Technical University of Ukraine  
“Kyiv Polytechnic Institute”  
and Institute for Applied System Analysis**



**NTUU “KPI” – KYIV – Ukraine  
2014**

## **UNITWIN/UNESCO Chairs Programme Progress Report**

**Period of Activity:** 1.06.2013 – 31.05.2014

**Title of UNESCO Chair:**

Higher Technical Education, System Analysis and Informatics

**Institution/Country:** National Technical University of Ukraine

“Kyiv Polytechnic Institute”, Ukraine

**Report established by:** Prof. Dr. Mykhailo Zgurovsky

**Function/Title:** Chairholder of the UNESCO Chair in Higher Technical Education, System Analysis and Informatics, Rector of the National Technical University of Ukraine “Kyiv Polytechnic Institute”, Academician of the National Academy of Sciences of Ukraine

## Summary

In the progress report of the UNESCO Chair in Higher Technical Education, Applied System Analysis and Informatics at the National Technical University of Ukraine "Kyiv Polytechnic Institute" and educational and scientific complex "Institute for Applied System Analysis" the main information about the results of its activity in 2013-2014 is represented.

The most significant measures in the sphere of academic activity connected with the organization and holding of seminars, trainings, conferences at national and international level, realization of international projects in the field of education are illustrated. Thus, during the reporting period 3 seminars, 2 forums, 5 international conferences, 1 educational fair, 1 charity event, 1 national festival, were carried out and 3 international projects implemented with the participation of the UNESCO Chair.

Interuniversity exchange within the subjects of the UNESCO Chair activity took place (3 visits).

The UNESCO Chair activity was widely illustrated in periodicals, scientific publications and at the UNESCO Chair site <http://www.unesco.kpi.ua>.

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## I. Address and Contact

	<b>Address of the Chairholder (or Coordinator). Other contact person</b>
<b>Name</b>	Michael Zgurovsky
<b>Function/ Title</b>	Rector
<b>University/ Institution</b>	The National Technical University of Ukraine “Kyiv Polytechnic Institute” (NTUU “KPI”)
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<b>Web Site</b>	<a href="http://www.unesco.kpi.ua">http://www.unesco.kpi.ua</a>

## II. Available Resources

### 1. Human Resources

#### 1. *For the Administration of the UNESCO Chair*

Coordinator	Prof. Sergiy Sidorenko
Executive Secretary	Olena Poptsova
Academic Secretary	Prof. Sergiy Shukayev
Partial time support Secretary	Olena Kizub

#### 2. *For the teaching/training/research activities*

##### *The UNESCO Chair has sections:*

- **HIGHER TECHNICAL EDUCATION,**  
headed by **academician of the National Academy of Sciences of Ukraine, Professor Yuriy Yakimenko, First Vice Rector of the National Technical University of Ukraine “Kyiv Polytechnic Institute”**
- **APPLIED SYSTEM ANALYSIS,**  
headed by **Professor Natalia Pankratova, Vice Director of the Institute for Applied System Analysis (IASA)**
- **INFORMATICS,**  
headed by **Professor Alexander Pavlov, Dean of the Faculty of Informatics and Computer Engineering NTUU “KPI”**
- **ORGANIZATIONAL BRANCH,**  
headed by **Professor Sergiy Shukayev, Deputy Head of International Collaboration Department NTUU “KPI”**

#### 3. *For the information and documentation activities:*

Academic Secretary Prof. Sergiy Shukayev

### 2. Material Resources

**Sources:** Host Institution, Governmental body

- **FOR THE ADMINISTRATIVE WORK:** Computers, fax machines, xerocopy machines, printer, and storage systems.
- **FOR THE TEACHING/TRAINING/RESEARCH ACTIVITIES:** Lecture rooms, video-edition, projector, Book edition, CD – edition, proceedings editions, e-learning.
- **FOR THE INFORMATION AND DOCUMENTATION ACTIVITIES:** Web-site, posters, brochures, Proceedings, Book editions.
- **FOR OTHER ACTIVITIES:** Conferencing

### III. Activities

#### 1. Academic Activities

##### Education/Seminars/Training/Research

#### Presentation of the joint project of the Polish Embassy in Ukraine and NTUU "KPI" on educational scientific "Ukrainian-Polish Centre of improving technologies of renewable energy and energy efficiency"

**Date and place:** August 30, 2013, National Technical University of Ukraine "Kyiv Polytechnic Institute", Kyiv, Ukraine

**Partnership:** National Technical University of Ukraine "Kyiv Polytechnic Institute", Embassy of Poland in Ukraine.

**Participants: 40**

- Undergraduate students
- Graduate students
- Academics
- Public administrators
- Employees from industry, or other private sector
- Teachers from primary education
- Teachers from secondary education
- Teachers from technical and vocational education
- Other groups

**Geographical coverage for participants and partners:**

- National
- Regional/Interregional/International

Regions	Countries
Africa	
Arab States	
Asia/Pacific	
Eastern and Central Europe	Ukraine, Poland
Western Europe and North America	
Latin America	

**Publications:**

**Title:** In Kiev presented the Ukrainian-Polish Center for Renewable Energy

**Publishers:** Informational and analytical portal "Ukrainian Energy"

**Year of Publication:** 2013

**Type of document/material:**

- Book
- Periodical (Newspaper)
- Other – Proceedings of the Conference

**Language(s):** Ukrainian

**Keywords:** Ukraine-Polish Center of improved technology of renewable energy and energy efficiency, new technologies, scientists and students to unite in a broad and large-scale implementation of energy efficient technologies in both countries.

## International Workshop "Fukushima-Chernobyl: Lessons from Chernobyl to Fukushima"

**Date and place:** October 11, 2013, National Technical University of Ukraine "Kyiv Polytechnic Institute", Kyiv, Ukraine

**Partnership:** National Technical University of Ukraine "Kyiv Polytechnic Institute", Embassy of Japan in Ukraine, Ukraine-Japan Center of NTUU "KPI", UNESCO Chair "Higher Technical Education, Applied Systems Analysis and Informatics" at the National Technical University of Ukraine "Kyiv Polytechnic Institute" and Institute for Applied System Analysis

**Participants: 120**

- Undergraduate students
- Graduate students
- Academics
- Public administrators
- Employees from industry, or other private sector
- Teachers from primary education
- Teachers from secondary education
- Teachers from technical and vocational education
- Other groups

**Geographical coverage for participants and partners:**

- National
- Regional/Interregional/International

Regions	Countries
Africa	
Arab States	
Asia/Pacific	Japan
Eastern and Central Europe	Ukraine
Western Europe and North America	

**Publications:**

**Title:** Fukushima, Chernobyl: lessons of survival after a disaster

**Publishers:** Kyivsky Polytechnic, No. 32

**Year of Publication:** October 11, 2013

**Type of document/material:**

- Book
- Periodical (Newspaper)
- Others – Proceedings of the Conference

**Language(s):** Ukrainian, English

**Keywords:** security, health and legal protection of rights of people who are in the disaster area or were involved in dealing with its consequences.

## International Seminar «Women in Industry: Realities and Challenges»

**Date and place:** January 22, 2014, National Technical University of Ukraine “Kyiv Polytechnic Institute”, Kyiv, Ukraine

**Partnership:** National Technical University of Ukraine "Kyiv Polytechnic Institute", Ukrainian Center for Gender Education at NTU "KPI", Center for resource-efficient and cleaner production in the framework of the United Nations Industrial Development Organization (UNIDO) in resource-efficient and cleaner production, Swiss Cooperation Office in Ukraine.

### **Participants: 30**

- Undergraduate students
- Graduate students
- Academics
- Public administrators
- Employees from industry, or other private sector
- Teachers from primary education
- Teachers from secondary education
- Teachers from technical and vocational education
- Other groups

### **Geographical coverage for participants and partners:**

- National
- Regional/Interregional/International

<b>Regions</b>	<b>Countries</b>
Africa	
Asia/Pacific	
Eastern and Central Europe	Ukraine
Western Europe and North America	Switzerland
Southern Europe	

### **Publications:**

**Title:** International Seminar «Women in Industry: Realities and Challenges»

**Publishers:** Kyivsky Polytechnic, No. 8

**Year of Publication:** January 22, 2014

**Type of document/material:**

- Book
- Periodical (Newspaper)
- Others – Proceedings of the Conference

**Language(s):** Ukrainian, English

**Keywords:** security, health and legal protection of rights of people who are in the disaster area or were involved in dealing with its consequences.



## International Workshop project ACTIVE European program ERASMUS MUNDUS

**Date and place:** January 20-24, 2014, Sevastopol National Technical University and Zhytomyr State Technological University

**Partnership:** National Technical University of Ukraine "Kyiv Polytechnic Institute", Warsaw University of Technology.

**Participants: 60**

- Undergraduate students
- Graduate students
- Academics
- Public administrators
- Employees from industry, or other private sector
- Teachers from primary education
- Teachers from secondary education
- Teachers from technical and vocational education
- Other groups

**Geographical coverage for participants and partners:**

- National
- Regional/Interregional/International

Regions	Countries
Africa	
Arab States	
Asia/Pacific	
Eastern and Central Europe	Ukraine, Poland
Western Europe and North America	
Latin America	

## 2. Conferences/Forums/Festivals

### International Conference «High-performance computing HPC-UA 2013»

**Date and place:** October 7, 2013, National Technical University of Ukraine “Kyiv Polytechnic Institute”, Kyiv, Ukraine

**Partnership:** National Technical University of Ukraine "Kyiv Polytechnic Institute", Institute of Cybernetics named after V.M. Glushkov and National Academy of Sciences in Ukraine, Representatives of leading research institutions, technical universities, laboratories and companies from Ukraine, Russia, Kazakhstan, USA, Germany, the Netherlands, Switzerland, the UK, Spain.

**Participants: 100**

- Undergraduate students
- Graduate students
- Academics
- Public administrators
- Employees from industry, or other private sector
- Teachers from primary education
- Teachers from secondary education
- Teachers from technical and vocational education
- Other groups

**Geographical coverage for participants and partners:**

- National
- Regional/Interregional/International

Regions	Countries
Africa	
Asia/Pacific	Kazakhstan
Eastern and Central Europe	Ukraine, Russia
Western Europe and North America	USA, Germany, Netherlands, Switzerland, United Kingdom
Southern Europe	Spain

**Publications:**

**Title:** International Conference «High-performance computing HPC-UA 2013»

**Publishers:** Kyivsky Polytechnic, No. 34

**Year of Publication:** October 7, 2013

**Type of document/material:**

- Book
- Periodical (Newspaper)
- Others – Proceedings of the Conference

**Language(s):** Ukrainian, English

**Keywords:** cluster computing in physics, astronomy, nanotechnology, computational biology, mathematics, the use of supercomputers in the industry, parallel programming, parallel scaling algorithms, design of cluster architectures, planners, management of cluster computing resources, hybrid computing using GPU, parallel data warehouse, GRID, Sloud.

## IV International Conference on High Technology HighMatTech-2013

**Date and place:** October 7–11 2013, National Technical University of Ukraine “Kyiv Polytechnic Institute”, Kyiv, Ukraine

**Partnerships:** National Technical University of Ukraine “Kyiv Polytechnic Institute”, Ukrainian Materials Research Society, Institute of Materials Science named after I.M. Frantsevich of National Academy of Sciences in Ukraine, Federation of European Materials Research Society (FEMS) and the European Materials Research Society (E-MRS).

### **Participants: 300**

- Undergraduate students
- Graduate students
- Academics
- Public administrators
- Employees from industry, or other private sector
- Teachers from primary education
- Teachers from secondary education
- Teachers from technical and vocational education
- Other groups

### **Regional Coverage**

- National
- Regional/Interregional/International

<b>Regions</b>	<b>Countries</b>
Africa	Algeria
Asia/Pacific	Turkey
Eastern and Central Europe	Ukraine, Russia, Belarus, Poland, Slovakia, Armenia, Georgia
Western Europe and North America	Germany, France, Great Britain, Northern Ireland
Southern Europe	Italy

### **Publications:**

**Title:** IV International Conference on High Technology HighMatTech-2013

**Publishers:** Kyivsky Polytechnic, No. 34

**Year of Publication:** October 31, 2013

**Type of document/material:**

- Book
- Periodical (Newspaper)
- Others – Proceedings of the Conference

**Language(s):** Ukrainian

**Keywords:** materials modern materials and technology, equipment and methods for determining the properties of materials, research and organizational support for research and commercial.

## II Ukrainian Festival "Sikorsky Challenge 2013"

**Date and place:** October 17, 2013, National Technical University of Ukraine "Kyiv Polytechnic Institute", Kyiv, Ukraine

**Partnership:** National Technical University of Ukraine "Kyiv Polytechnic Institute", Science Park "Kyiv Polytechnica", Leonid Kuchma's President's Fund "Ukraine" in collaboration with the Independent Association of Ukrainian Banks, Ukrainian Science and Technology Center in Ukraine (STCU), the U.S. Embassy in Ukraine, the European Commission and innovative companies and funds of Ukraine, the European Union and the United States of America.

**Participants: 100**

- Undergraduate students
- Graduate students
- Academics
- Public administrators
- Employees from industry, or other private sector
- Teachers from primary education
- Teachers from secondary education
- Teachers from technical and vocational education
- Other groups

### **Regional Coverage**

- National**
- Regional/Interregional/International**

<b>Regions</b>	<b>Countries</b>
Africa	
Asia/Pacific	
Eastern and Central Europe	Ukraine, EU
Western Europe and North America	USA
Latin America	

**Publications:**

**Title:** Ukrainian Festival "Sikorsky Challenge 2013": Winners are determined!

**Publishers:** Kyivsky Polytechnic, No. 33

**Year of Publication:** October 18, 2013

**Type of document/material:**

- Book
- Periodical (Newspaper)
- Others – Proceedings of the Conference

**Language(s):** Ukrainian, English

**Keywords:** business-oriented projects, investment and financial support for start-up, hi-tech company, field of technical assistance to innovative activity.

## International theoretical and practical conference "Development of Students Social Responsibility in Higher Technical Education"

**Date and place:** October 18, 2013, National Technical University of Ukraine "Kyiv Polytechnic Institute", Kyiv, Ukraine

**Partnerships:** The National Technical University of Ukraine "Kyiv Polytechnic Institute", International Center of development of Business Ethics of NTUU "KPI", Ministry of Education and Science of Ukraine, Wroclaw University of Technology.

### **Participants: 80**

- Undergraduate students
- Graduate students
- Academics
- Public administrators
- Employees from industry, or other private sector
- Teachers from primary education
- Teachers from secondary education
- Teachers from technical and vocational education
- Other groups

### **Regional Coverage**

- National
- Regional/Interregional/International

<b>Regions</b>	<b>Countries</b>
Africa	
Arab States	
Asia/Pacific	
Eastern and Central Europe	Ukraine, Poland
Western Europe and North America	

### **Publications:**

**Title:** International theoretical and practical conference "Development of Students Social Responsibility in Higher Technical Education"

**Publishers:** Kyivsky Polytechnic, No. 34

**Year of Publication:** October 19, 2013

**Type of document/material:**

- Book
- Periodical (Newspaper)
- Others – Proceedings of the Conference

**Language(s):** Ukrainian, English

**Keywords:** the Mission of the Technical University in Terms of Economic and Spiritual Crisis, personal Social Responsibility and Culture, development of Students Social Responsibility in Higher Technical Educational Institution

## Joint Ukrainian-Korean International Scientific Forum "Science, Innovation, Technology – 2013"

**Date and place:** November 21, 2013, National Technical University of Ukraine "Kyiv Polytechnic Institute", Kyiv, Ukraine

**Partnership:** National Technical University of Ukraine "Kyiv Polytechnic Institute", Embassy of the Republic of Korea in Ukraine.

**Participants: 80**

- Undergraduate students
- Graduate students
- Academics
- Public administrators
- Employees from industry, or other private sector
- Teachers from primary education
- Teachers from secondary education
- Teachers from technical and vocational education
- Other groups

**Geographical coverage for participants and partners:**

- National
- Regional/Interregional/International

Regions	Countries
Africa	
Asia/Pacific	Korea
Eastern and Central Europe	Ukraine, Russia
Southern Europe	
Latin America	

**Publications:**

**Title:** Joint Ukrainian-Korean International Scientific Forum "Science, Innovation, Technology – 2013"

**Publishers:** Kyivsky Polytechnic, No. 41

**Year of Publication:** November 22, 2013

**Type of document/material:**

- Book
- Periodical (Newspaper)
- Others – Proceedings of the Conference

**Language(s):** Ukrainian, English

**Keywords:** cooperation between research centers and educational institutions in Korea and NTUU "KPI", space, IT-technology, bio-and nanotechnology, new innovative technologies, support for start-ups, promotion of small and medium enterprises in the real sector.

## 10th All-Ukrainian Methodological Conference “Higher Education: Issues and Ways to Provide Quality”

**Date and place:** 28-29 November 2013, National Technical University of Ukraine “Kyiv Polytechnic Institute”, Kyiv, Ukraine.

**Partnership:** National Technical University of Ukraine “Kyiv Polytechnic Institute”, Ministry of Education and Science of Ukraine, National Academy of Pedagogical Sciences of Ukraine and 37 higher education institutions of the Ukraine.

### **Participants: 124**

- Undergraduate students
- Graduate students
- Academics
- Public administrators
- Employees from industry, or other private sector
- Teachers from primary education
- Teachers from secondary education
- Teachers from technical and vocational education
- Other groups

### **Regional Coverage**

- National**
- Regional/Interregional/International**

<b>Regions</b>	<b>Countries</b>
Africa	
Asia/Pacific	
Eastern and Central Europe	Ukraine
South Europe	
North America	

### **Publications:**

**Title:** 10th All-Ukrainian methodological conference “Higher education: issues and ways to provide quality”

**Publishers:** Kyivsky Polytechnic, No. 40

**Year of Publication:** November 28, 2013

**Type of document/material:**

- Book
- Periodical (Newspaper)
- Others – Proceedings of the Conference

**Language(s):** Ukrainian, English

**Keywords:** problems of adaptation to the European system of quality assurance, evaluation and monitoring of the quality of education and advanced teaching technologies and quality.

## International Scientific and Technical Conference «Wastewater and Water Treatment Technologies – Technical, Biological and Ecological Aspects»

**Date and place:** December 3, 2013, National Technical University of Ukraine “Kyiv Polytechnic Institute”, Kyiv, Ukraine.

**Partnership:** National Technical University of Ukraine “Kyiv Polytechnic Institute”, Polish Academy of Sciences, Scientific Center in Kyiv, Lublin University of Technology, Society of Ecological Chemistry and Engineering, I.I. Schmalhausen Institute of Zoology, A.S. Makarenko Sumy State Pedagogical University.

**Participants:** 109

- Undergraduate students
- Graduate students
- Academics
- Public administrators
- Employees from industry, or other private sector
- Teachers from primary education
- Teachers from secondary education
- Teachers from technical and vocational education
- Other groups

### Regional Coverage

- National
- Regional/Interregional/International

Regions	Countries
Africa	
Asia/Pacific	Tajikistan, Kazakhstan
Eastern and Central Europe	Ukraine, Poland, Russia, Slovenia
Western Europe and North America	Germany
North America	

### **Publications:**

**Title:** International Scientific and Technical Conference «Wastewater and Water Treatment Technologies – Technical, Biological and Ecological Aspects»

**Publishers:** Kyivsky Polytechnic, No. 41

**Year of Publication:** December 3, 2013

**Type of document/material:**

- Book
- Periodical (Newspaper)
- Others – Proceedings of the Conference

**Language(s):** Ukrainian

**Keywords:** problem of lack of clean water, scientific, technical and technological aspects of the impact of wastewater on the environment.



## V International Forum “The New Horizons of ICT in Education”

**Date and place:** December 10, 2013, National Technical University of Ukraine “Kyiv Polytechnic Institute”, Kyiv, Ukraine.

**Partnership:** National Technical University of Ukraine “Kyiv Polytechnic Institute”, Ministry of Education and Science of Ukraine, National Academy of Pedagogical Sciences of Ukraine and 37 higher education institutions of the Ukraine.

**Participants: 100**

- Undergraduate students
- Graduate students
- Academics
- Public administrators
- Employees from industry, or other private sector
- Teachers from primary education
- Teachers from secondary education
- Teachers from technical and vocational education
- Other groups

### Regional Coverage

- National
- Regional/Interregional/International

Regions	Countries
Africa	
Asia/Pacific	
Eastern and Central Europe	Ukraine
South Europe	
Western Europe and North America	USA

### **Publications:**

**Title:** Forum “The New Horizons of ICT in Education”

**Publishers:** Kyivsky Polytechnic, No. 1

**Year of Publication:** January 1, 2014

**Type of document/material:**

- Book
- Periodical (Newspaper)
- Others – Proceedings of the Conference

**Language(s):** Ukrainian, English

**Keywords:** implementation of information and communication technologies (ICT) in the educational process, exchange of experience, the presentation of new courses and educational resources Intel.

## Fair of Japanese Universities "Education in Japan"

**Date and place:** March 14-15, 2014, National Technical University of Ukraine "Kyiv Polytechnic Institute", Kyiv, Ukraine

**Partnerships:** Ukraine-Japan Center at National Technical University of Ukraine "Kyiv Polytechnic Institute", Ministry of Education and Science, Youth and Sport of Ukraine, Ministry of Education, Culture, Sports, Science and Technology of Japan, Embassy of Japan in Ukraine, Japan International Cooperation Agency (JICA), Japan Student Services Organization (JASSO).

### **Participants: 200**

- Undergraduate students
- Graduate students
- Academics
- Public administrators
- Employees from industry, or other private sector
- Teachers from primary education
- Teachers from secondary education
- Teachers from technical and vocational education
- Other groups

### **Regional Coverage**

- National
- Regional/Interregional/International

<b>Regions</b>	<b>Countries</b>
Africa	
Arab States	
Asia/Pacific	Japan
Eastern and Central Europe	Ukraine
Western Europe and North America	

## Charity Event "Japan Day"

**Date and place:** May 21, 2014, National Technical University of Ukraine “Kyiv Polytechnic Institute”, Kyiv, Ukraine

**Partnerships:** National Technical University of Ukraine “Kyiv Polytechnic Institute”, Ukraine-Japan Center at National Technical University of Ukraine “Kyiv Polytechnic Institute”, Embassy of Japan in Ukraine, United Nations Children's Fund (UNICEF) in Ukraine.

**Participants: 500**

- Undergraduate students
- Graduate students
- Academics
- Public administrators
- Employees from industry, or other private sector
- Teachers from primary education
- Teachers from secondary education
- Teachers from technical and vocational education
- Other groups

### Regional Coverage

- National
- Regional/Interregional/International

Regions	Countries
Africa	
Arab States	
Asia/Pacific	Japan
Eastern and Central Europe	Ukraine
Western Europe and North America	

## XVI International Conference “System Analysis and Information Technologies 2014”

**Date and place:** May 26-30, 2014, National Technical University of Ukraine “Kyiv Polytechnic Institute”, Kyiv, Ukraine.

**Partnership:** National Technical University of Ukraine “Kyiv Polytechnic Institute”, Ministry of Education, Science, Youth and Sports of Ukraine, National Academy of Sciences of Ukraine, UNESCO Chair in Higher Technical Education, Applied System Analysis and Informatics at NTUU “KPI” and IASA, the Educational-Scientific Complex "Institute of Applied System Analysis", Oles Honchar Dnipropetrovsk National University.

**Participants: 439**

- Undergraduate students
- Graduate students
- Academics
- Public administrators
- Employees from industry, or other private sector
- Teachers from primary education
- Teachers from secondary education
- Teachers from technical and vocational education
- Other groups

### Regional Coverage

- National
- Regional/Interregional/International

Regions	Countries
Africa	
Asia/Pacific	Georgia,
Eastern and Central Europe	Ukraine, Russia, Poland, Belarus, Azerbaijan
South Europe	
North America	

**Publications:**

**Title:** Proceeding of the International Conference “System Analysis and Information Technologies 2014” (May 26-30, 2014, Kyiv, Ukraine).

**Publishers:** NTUU “KPI” (<http://sait.kpi.ua/books/sait2014.ebook.pdf/view>)

**Year of Publication:** 2014

### 3. Interuniversity Exchanges/Partnership

#### Visit of the Ambassador Extraordinary and Plenipotentiary of the Republic of Cuba to Ukraine H.E. Mr. Ernesto Antonio Sentí Darias

**Date and place:** June 19, 2013, NTUU "KPI"

**Purpose:** familiarization with university, discussion of cooperation between higher technical educational institutions

#### Visit of the world-known scientist, Nobel Laureate in Chemistry, Director of Japan Institute of Physical and Chemical Research "RIKEN" Dr. Ryōji Noyori

**Date and place:** July 23, 2013, NTUU "KPI"

**Purpose:** familiarization with university, discussion of cooperation, signing of a statement

#### Visit of the Ambassador Extraordinary and Plenipotentiary of the Republic of Poland in Ukraine H.E. Mr. Henryk Litwin

**Date and place:** August 30, 2013, NTUU "KPI"

**Purpose:** participation in joint Ukrainian-Polish events devoted to unveiling the monument of Wojciech Świątosławski who graduated NTUU "KPI" in 1906

#### Visit of well-known researcher in the field of Information Society, Innovation and Network Security Mr. Richard Bennett (USA)

**Date and place:** September 13, 2013, NTUU "KPI"

**Purpose:** familiarization with university, a lecture to students

#### Visit of the President of Tokyo University of Agriculture and Technology Prof. Tadashi Matsunaga

**Date and place:** October 4, 2013, NTUU "KPI"

**Purpose:** signing of agreement on academic exchange between two universities

#### Visit of M.Z. Zgurovsky to Japan

**Date and place:** October 7-10, 2013, Japan

**Purpose:** participation in the Forum "Science and Technology in Society"

#### Visit of Executive Vice-President of the University of Tokyo Prof. Yoichiro Matsumoto

**Date and place:** October 24, 2013, NTUU "KPI"

**Purpose:** familiarization with university, lecture to students on "Development and promotion of partnership between higher school and industry – joint research,

technology transfer and university entrepreneurship"

### Visit of the Ambassador Extraordinary and Plenipotentiary of Canada to Ukraine H.E. Mr. Troy Lulashnyk

**Date and place:** November 12, 2013, NTUU "KPI"

**Purpose:** familiarization with university, lecture to students on "Canadian-Ukrainian relations: past, present and future"

### Visit of M.Z. Zgurovsky to New-York, USA

**Date and place:** December 7-13, 2013, New-York, USA

**Purpose:** participation in presentation of national scientific and technical achievements

### Visit of M.Z. Zgurovsky to Biala Viazha, Poland

**Date and place:** March 11-14, 2014, Biala Viazha, Poland

**Purpose:** participation in the Conference of Rectors of Polish Technological Universities

### Visit of Vice-Rector O. Novikov to Qatar

**Date and place:** from March 29 to April 1, 2014, Biala Viazha, Poland

**Purpose:** establishment of interuniversity cooperation in the field of information and communication technologies, programming, joint development of modern scientific decisions and programs

### Visit of the Ambassador Extraordinary and Plenipotentiary of the French Republic to Ukraine H.E. Mr. Alain Remy

**Date and place:** April 8, 2014, NTUU "KPI"

**Results:** lecture for students on "Student mobility. Higher education in France. French-Ukrainian cooperation in education"

### Visit of representative of the Polish Education Foundation "PERSPEKTYWY" Prof. Kazimierz Bilanow

**Date and place:** April 9-11, 2014, NTUU "KPI"

**Purpose:** final stage of preparation of the agreement on resumption of full-scale relations between technical higher education institutions of Poland and Ukraine

## Visit of the Head of UN Children's Fund (UNICEF) in Ukraine Yukié Mokuo

**Date and place:** May 21, 2014, NTUU "KPI"

**Purpose:** lecture for students on "UNICEF in Ukraine: how shall we achieve a better life"

## Visit of the Ambassador Extraordinary and Plenipotentiary of Japan to Ukraine H.E. Mr. Toichi Sakata

**Date and place:** May 21, 2014, NTUU "KPI"

**Purpose:** popularization of Japanese culture and dissemination of knowledge about healthy way of life

### **4. Publications and multimedia materials**

1. UNESCO Chair official web-site <http://www.unesco.kpi.ua>
2. **Title:** D. Ikeda, M.Z. Zgurovsky. Japan and Ukraine – Different Fortunes, Common Hopes. Dialogues. – 272 p.  
**Publisher(s):** «Genesa»  
**Year:** 2013  
**Type of document/material:** book
3. **Title:** S.I. Sidorenko Kyiv Polytechnic: relations with the world. – P. 1-2  
**Publisher(s):** Kyiv Polytechnic, №6  
**Year:** 2013  
**Type of document/material:** article
4. **Title:** M.Z. Zgurovsky Global modeling of sustainable development in the context of quality and safety of human life. – P.91-118  
**Publisher(s):** "ARIAL"  
**Year:** 2013  
**Type of document/material:** monograph
5. **Title:** M.Z. Zgurovsky, S.M. Shukayev UNESCO Chair in Higher Technical Education, Applied System Analysis and Informatics.– P. 34  
**Publisher(s):** Crimea, Simferopol  
**Year:** 2013  
**Type of document/material:** report at the international conference "VI Vernadsky hlobalnye problems and Modern Civilization"
6. **Title:** Y. Yakymenko, S. Sidorenko, V. Timofeev, S. Shukayev, V. Holyavko. Tempus projects as a mechanism for the modernization of the educational process in the case of NTUU "KPI"  
**Publisher(s):** Kyiv, NTUU "KPI"

**Year:** 2013

**Type of document/material:** report on the 10th All-Ukrainian methodological conference “Higher Education: Issues and Ways to Provide Quality”

7. **Title:** Zgurovsky, Mikhail Z.; Sadovnichiy, Victor A. (Eds.) Continuous and Distributed Systems: Theory and Applications Series: Solid Mechanics and Its Applications, Vol. 211, 2014, XIX, 333 p. 33 illus., 14 illus. in color

**Publisher(s):** Springer

**Year:** 2014

**Type of document/material:** book

8. **Title:** Michael Z. Zgurovsky, Pavlo O. Kasyanov Multivalued Dynamics of Solutions for Autonomous Operator Differential Equations in Strongest Topologies // Continuous and Distributed Systems: Theory and Applications, Solid Mechanics and Its Applications, Volume 211, 2014, pp 149-162

**Publisher(s):** Springer

**Year:** 2014

**Type of document/material:** book

9. **Title:** Oleksiy V. Kapustyan, Pavlo O. Kasyanov, José Valero, Mikhail Z. Zgurovsky Structure of Uniform Global Attractor for General Non-Autonomous Reaction-Diffusion System // Continuous and Distributed Systems: Theory and Applications, Solid Mechanics and Its Applications, Volume 211, 2014, pp 163-180

**Publisher(s):** Springer

**Year:** 2014

**Type of document/material:** book

10. **Title:** Eugene A. Feinberg, Pavlo O. Kasyanov, Mikhail Z. Zgurovsky Optimality Conditions for Partially Observable Markov Decision Processes // Continuous and Distributed Systems: Theory and Applications, Solid Mechanics and Its Applications, Volume 211, 2014, pp 251-264

**Publisher(s):** Springer

**Year:** 2014

**Type of document/material:** book

11. **Title:** Eugene A. Feinberg, Pavlo O. Kasyanov, Mikhail Z. Zgurovsky Optimality Conditions for Partially Observable Markov Decision Processes // Continuous and Distributed Systems: Theory and Applications, Solid Mechanics and Its Applications, Volume 211, 2014, pp 251-264

**Publisher(s):** Springer

**Year:** 2014

**Type of document/material:** book



12. **Title:** Michael Z. Zgurovsky, Pavlo O. Kasyanov Evolution Inclusions in Nonsmooth Systems with Applications for Earth Data Processing: Uniform Trajectory Attractors for Non-autonomous Evolution Inclusions Solutions with Pointwise Pseudomonotone Mappings // Journal of Global Optimization  
**Publisher(s):** Springer  
**Year:** 2014  
**Type of document/material:** journal
13. **Title:** Eugene A. Feinberg, Pavlo O. Kasyanov, Mikhail Z. Zgurovsky Partially Observable Total-Cost Markov Decision Processes with Weakly Continuous Transition Probabilities // Mathematics of Operation Research  
**Publisher(s):** The Institute of Management Sciences and Operations Research Society of America  
**Year:** 2014  
**Type of document/material:** journal
13. **Title:** M.Z. Zgurovsky, P.O. Kasyanov, L.S. Paliichuk. Automatic Feedback Control For One Class Of Contact Piezoelectric Problems // System research and information technologies. – 2014. – no.1 – P. 56-68  
**Publisher(s):** NTUU "KPI"  
**Year:** 2014  
**Type of document/material:** journal

## IV. Outcomes

International activity of NTUU «KPI» is one of the key directions of the university strategic development. It consists of such basic constituents: preparation of specialists and scientific and academic brainpower including for foreign countries; participating in international educational organizations, funds and calls which are held with the purpose of obtaining grants; exchanging information about scientific publications, participation in conferences, exhibitions, seminars, educational fair; collaboration with the oversea institutes of higher education, including academic and student exchanges.

UNESCO Chair in Higher Technical Education, Applied System Analysis and Informatics, which has become one of the brain power centers of Ukrainian higher technical education, plays an important role in this process. The Chair took the initiative in organizing the international congresses, conferences and workshops concerning the different aspects of higher education growth and understanding of its importance in modern society.

Faculty members and students of NTUU “KPI” use the opportunities of training abroad due to educational grants and programs; implement joint scientific projects with foreign partners, the results of these workshops being published in the newspaper “Kyivskiy Politechnik”.

One of the important directions of activity for the UNESCO Chair is participation in the program “UNESCO-UNITWIN OCW/OER INITIATIVE”.

UNESCO Chair in Higher Technical Education, Applied System Analysis and Informatics actively facilitated participation of NTUU "KPI" in the most prestigious world university ratings, such as QS World University Rankings, Thomson Reuters, and U-Multirank.

In 2013, NTUU "KPI" for the third time entered the rating of the best world universities - QS World University Rankings.

In 2013, NTUU "KPI" was the second among Ukrainian universities in Webometrics. Therewith, position of NTUU "KPI" in the previous edition of Webometrics at the beginning of 2013 (position 510) is still the best result of Ukrainian universities in this rating.

National Technical University of Ukraine "Kyiv Polytechnic Institute" for the fourth time took a lead in UNESCO academic rating "TOP-200 Ukraine".

Another direction of activity of the Chair is comprehensive support of participation of university researchers in international research programs (FP7, ERASMUS MUNDUS, EURASIA, and Fulbright). Support of international projects in technology transfer was significantly strengthened: in 2013 NTUU "KPI" won 2 projects in this area, one of them was under 7FP.

In 2013, the UN project on industrial development (UNIDO) "Promoting the adaptation and implementation of resource efficient and cleaner production through establishment of the Center of cleaner production in Ukraine" was presented and the Center was opened in NTUU "KPI".

The same year there was presented a Ukrainian-Polish Centre on development of technologies for renewable energy sources and energy efficiency. The main goal of the project is to establish and ensure functioning of a common strong scientific and methodological nucleus where a world-class research will be carried out and practical innovations in the field of renewable energy sources will be developed.

In 2013, students, postgraduates and faculty members (60 persons) won mobility grants under ERASMUS MUNDUS Program.

In academic year 2013/2014, a senior lecturer of the Faculty of Informatics and Computer Science O. Molchanovsky, a student of the Faculty of Biotechnology and Biotechnique A. Doloma, and a student of the Faculty of Applied Mathematics I. Korol entered the list of grant holders of the Fulbright Program. Fulbright Program is sponsored by the U.S. government and plays an important role among international programs for NTUU "KPI".

In 2013-2014 with the active participation of the UNESCO Chair at the NTUU "KPI" were conducted specialized workshops familiarizing scientific community of the University with the features of submission of applications for participation in international programs, the creation of consortia, and with experience of the world leading universities in this direction.

The work of the UNESCO Chair has been fully covered by the media through publications in newspapers and speeches at international conferences.

Owing to the active work of the UNESCO Chair in Higher Technical Education, Applied System Analysis and Informatics the international cooperation for the last years became the integral part of NTUU “KPI” and IASA. This creates the favorable conditions for future integration in the international and, in particular, European educational, scientific and informational space and promotes introduction of the reforms, which were started with the Bologna process.

NTUU «KPI» has become more open and susceptible to the experience of other universities, its interuniversity and international relations have grown, a wider opportunity for spreading one’s achievements and experience has appeared.

The main aim the UNESCO Chair in Higher Technical Education, Applied System Analysis is the realization of these opportunities for cooperation with NTUU “KPI”.

## **VI. Forthcoming Activities**

### **XXI International Conference "Automation 2014"**

**Date and place:** September, 2014, NTUU “KPI”

**Partnership:** under verification

### **II International Scientific and Technical Conference "Pure Water. Fundamental, Applied and Industrial Aspects"**

**Date and place:** October, 2014, NTUU “KPI”

**Partnership:** under verification

### **XVII International Scientific and Practical Conference on System Analysis and Information Technology 2015**

**Date and place:** May, 2015, NTUU “KPI”

**Partnership:** Institute for Applied System Analysis, NTUU “KPI”, UNESCO Chair in Higher Technical Education, Applied System Analysis and Informatics

## VII. Development Prospects

Further activity of the UNESCO Chair is aimed at the implementation of the main trends of the scientific level in order to increase the role of the university in Ukraine and other countries.

Activities aimed at the increase of the collaboration between specialists, consultants, experts in the fields of education, science and culture on the national, international and world levels are planned.

Project records (terms of reference, applications) will be developed and the search for possibilities of getting grants for the educational, research and culture projects as well as for training, student and academic exchanges will be conducted.

UNESCO Chair will continue to actively develop and implement ranking of higher education institutions of Ukraine according to the statements of Memorandum about Cooperation with UNESCO-CEPES from 25<sup>th</sup> April 2006.

UNESCO Chair in Higher Technical Education, Applied Systems Analysis and Informatics is going to further collaborate with the «UNESCO-UNITWIN OCW/OER Initiative» (UUOOI).

The activity of the Ukrainian Gender Education Centre, established at NTUU “KPI” in 2001 under the aegis of the UNESCO Chair, is based on creating tools that allow to implement new information technology into gender education. It acts up to the Memorandum of UNDP in Ukraine and National Technical University of Ukraine.

UNESCO Chair in Higher Technical Education, Applied Systems Analysis and Informatics at NTUU “KPI” plans to continue development and collaboration in the frame of Founding of the UNESCO/UNITWIN Chairs Programme, approved in 1992 at the 26th UNESCO General Conference. The main fields of this program’s charity concern higher educational institutions of the developing countries and countries in transit. The UNESCO/UNITWIN Chairs projects refer to research preparation and cover all main fields of UNESCO Chair in Higher Education, Applied Systems Analysis and Informatics: education, human rights, environmental protection, humanities and applied science, communication, etc.

UNESCO Chair puts a great emphasis on development of innovation direction of the University, both in educational and research programs. In particular, in 2014–2015 KPI is going to proceed with implementation of the following projects:

- Project "Ukrainian-Polish Centre on development of technologies for renewable energy sources and energy efficiency" within the framework of Polish Development Aid of Ministry of Foreign Affairs of the Republic of Poland;
- Project under the 7th Framework Program "Knowledge Transfer Community to bridge the gap between research, innovation and business creation";

– STCU project "Innovation technologies for recultivation of polluted water", "Technology transfer in CIS countries (Azerbaijan, Georgia, Kazakhstan, Moldova, and Uzbekistan)".

Further activity of UNESCO will be focused on development of the system of life-long learning for the people; improvement of accessibility to the qualitative education by development of distance learning system and means of information support for the process using modern information and communication technologies. Besides, activity of the UNESCO Chair is directed at promotion of peace and safety through expansion of cooperation in the field of education, science and culture in the interests of ensuring respect, justice, legality, human rights and fundamental freedoms declared in the United Nations Charter, for all people in spite of their race, language or religion.