



United Nations  
Educational, Scientific and  
Cultural Organization



UNESCO Chair in Higher Technical Education,  
Applied System Analysis and Informatics  
National Technical University of Ukraine  
"Igor Sikorsky Kyiv Polytechnic Institute"  
Ukraine, Kyiv

# UNITWIN/UNESCO CHAIRS PROGRAMME

## ***PROGRESS REPORT 2016-2017***

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



**Igor Sikorsky Kyiv Polytechnic Institute –  
KYIV – Ukraine  
2017**

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

**Period of Activity:** 1.06.2016 – 31.05.2017

**Title of UNESCO Chair:**

Higher Technical Education, System Analysis and Informatics

**Institution/Country:** National Technical University of Ukraine “Igor Sikorsky 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 “Igor Sikorsky 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 “Igor Sikorsky Kyiv Polytechnic Institute” and educational and scientific complex "Institute for Applied System Analysis" the main information about the results of its activity in 2016-2017 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 2 Round tables, 2 forums, 3 international conferences, 1 national festival of innovation projects were carried out and 4 international projects implemented with the participation of the UNESCO Chair.

Interuniversity exchange within the subjects of the UNESCO Chair activity took place (6 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>	National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute” (Igor Sikorsky Kyiv Polytechnic Institute)
<b>Street</b>	37, Peremohy ave.
<b>Postal Code</b>	03056
<b>City</b>	Kyiv
<b>Country</b>	Ukraine
<b>Phone</b>	+380 44-236 69 13
<b>Fax</b>	+380 44-406 85 57
<b>E-mail</b>	<a href="mailto:mzz@kpi.ua">mzz@kpi.ua</a> , <a href="mailto:sidorenko@kpi.ua">sidorenko@kpi.ua</a>
<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 Academic 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 “Igor Sikorsky 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 Igor Sikorsky Kyiv Polytechnic Institute*
- **ORGANIZATIONAL BRANCH,**  
headed by **Professor Sergiy Shukayev**, *Deputy Head of International Collaboration Department Igor Sikorsky Kyiv Polytechnic Institute*

#### 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

#### Round Table “Combination of Education, Science and Innovation – the Main Line of Ukrainian Integration into European System of Higher Technical Education”

**Date and place:** August 22, 2016, National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”, Kyiv, Ukraine

**Partnership:** National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”, Polish educational fund «PERSPEKTYWY».

**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

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

**Publications:**

**Title:** Rectors of Polish and Ukrainian Technical Universities Discussed in KPI Problems of Education, Science and Innovation Integration and Agreed the Lines of Further Cooperation

**Publishers:** <http://kpi.ua/en/node/13180>

**Year of Publication:** 22 August 2016

**Type of document/material:**

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

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

**Keywords:** problems of education, science and innovation integration in the context of cooperation between Ukrainian and Polish technical universities, cooperation between Rectors Conference of technical universities of Polish Republic and Rectors Association of higher educational establishments of Ukraine, cooperation of Polish and Ukrainian scientists.

## Round Table “WorldSkills and its Experience as a Key to Effective Economy”

**Date and place:** November 24, 2016, National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”, Kyiv, Ukraine

**Partnership:** National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”, WorldSkills International association, non-governmental organization WorldSkills 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
Asia/Pacific	
Eastern and Central Europe	Ukraine
Western Europe and North America	Netherlands
Latin America	

**Publications:**

**Title:** Round table "WorldSkills and its Experience as a Key to Effective Economy"

**Publishers:** <http://kpi.ua/en/node/13614>

**Year of Publication:** November 24, 2016

**Type of document/material:**

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

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

**Keywords:** WorldSkills International, development of professional education, professional skills competitions, modern working occupations: construction and constructing technologies; creative art and fashion; information and communication technologies; production and engineering technologies; social and personal services; transport and logistics.

## 2. Conferences/Forums/Festivals

### XVII International Scientific and Practical Conference “Renewable Energy and Energy Efficiency of the XXI Century”

**Date and place:** September 29-30, 2016, National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”, Kyiv, Ukraine

**Partnership:** National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”, Representative office of the Polish Academy of Sciences in Kyiv, National Academy of Sciences of Ukraine, State Agency on Energy Efficiency and Energy Saving of Ukraine, Scientific and Technical Union of Ukrainian experts and electricians in power engineering, Institute of Renewable Energy at National Academy of Sciences of Ukraine, Inter-Branch Scientific and Technical Center for Wind Power Engineering at NASU, Ukrainian Industrial Wind Power Plants Association, UNESCO Chair in Higher Technical Education, Applied System Analysis and Informatics at Igor Sikorsky Kyiv Polytechnic Institute and Institute for Applied System Analysis, Ukrainian-Polish Center of development renewable energy sources and energy efficiency, All-Ukrainian Youth Organization "Green Energy for the Future", United Nations Industrial Development Organization (UNIDO), EURO SOLAR – Ukraine, Consortium "Eneko".

**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	Republic of China, Republic of Korea
Eastern and Central Europe	Ukraine, Poland, Germany

#### **Publications:**

**Title:** XVII International Conference “Renewable Power Generation and Energy Efficiency in XXI Century”

**Publishers:** Kyivsky Polytechnic, No. 29

**Year of Publication:** October 06, 2016

**Type of document/material:**

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

**Language(s):** Ukrainian, English (<http://kpi.ua/en/node/13339>)

**Keywords:** “Energy efficiency”; “RES complex systems”; “Wind power engineering”; “Solar power engineering”; “Biomass energy”; “Hydraulic power engineering”; “Geothermal power engineering”; “Educational activity”.



## V Ukrainian Festival of Innovation Projects “Sikorsky Challenge 2016”

**Date and place:** October 11-14, 2016, National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”, Kyiv, Ukraine

**Partnership:** National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”, Science Park "Kyivska Politechnica" in partnership with Leonid Kuchma's President's Fund "Ukraine", International Investment Company Noosphere, Investment Company ILand Management, V.S. Myhalevych Venture Fund, Kalinin Invention Fund, Intel, etc.

### **Participants: 700**

- 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:** Festival of Innovative Projects «Sikorsky Challenge 2016» Started in Igor Sikorsky KPI

**Publishers:** <http://kpi.ua/en/node/13359>

**Year of Publication:** October 11, 2016

**Type of document/material:**

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

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

**Keywords:** innovation ecosystem of Ukraine, commercialization of research ideas and innovation, creation of a network of startup schools at universities as the basis for the development of an innovative ecosystem of Ukraine, business incubators and accelerators.

## IV International Scientific and Practical Conference “Clean Water. Fundamental, Applied and Industrial Aspects”

**Date and place:** October 26-28, 2016, National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”, Kyiv, Ukraine

**Partnerships:** National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”, Representative office of the Polish Academy of Sciences in Kyiv, National Academy of Sciences of Ukraine, UNESCO Chair in Higher Technical Education, Applied System Analysis and Informatics at Igor Sikorsky Kyiv Polytechnic Institute and Institute for Applied System Analysis, Science Park "Kyivska Politechnica", Ukrainian-Polish Center at Igor Sikorsky Kyiv Polytechnic Institute, Lublin University of Technology, Society of Ecological Chemistry and Engineering, LLC Technologies of Nature.

**Participants:** 132

- 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
Asia/Pacific	
Eastern and Central Europe	Ukraine, Belarus, Poland
Western Europe and North America	
Latin America	

### Publications:

**Title:** IV International Scientific and Practical Conference "Pure water. Fundamental, Applied and Industrial Aspects"

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

**Year of Publication:** November 03, 2016

**Type of document/material:**

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

**Language(s):** Ukrainian, English (<http://kpi.ua/en/node/13509>)

**Keywords:** "Technologies of natural water purification. Technical aspects of water supply", "The effect of waste water on the environment. Monitoring and forecast of natural water state in terms of intensive water consumption" and "Technologies of waste water purification, sludge neutralization, and energy and energy carriers generation. Biological and biochemical aspects".

## Forum of Rectors of Higher Technical Educational Establishments of Ukraine and Poland

**Date and place:** April 6-7, 2017, National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”, Kyiv, Ukraine

**Partnership:** National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”, Ministry of education and science of Ukraine, Ministry of Science and Higher Education of Republic of Poland, Association of rectos of higher technical educational establishments of Ukraine, Conference of rectors of technical universities of Republic of Poland, Polish educational fund «PERSPEKTYWY».

### **Participants: 445**

- 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	
Eastern and Central Europe	Ukraine, Poland
Western Europe and North America	
Latin America	

### **Publications:**

**Title:** Forum of Rectors of Higher Technical Educational Establishments of Ukraine and Poland Rstarted its Work

**Publishers:** Kyivsky Polytechnic, No. 12

**Year of Publication:** April 13, 2017

**Type of document/material:**

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

**Language(s):** Ukrainian, English (<http://kpi.ua/en/node/14165>)

**Keywords:** Ukrainian-Polish days of education, science and innovations, “International and external economic activity as factor of internationalization of modern European leading technical university”; “European accreditation of engineering education. European certification of engineers. Rating of educational programs”; Opportunities of EU ERASMUS+ program for universities of Ukraine and Republic of Poland – great start for development of long-term cooperation”; “Double degre diploma – cooperation of higher technical educational establishments of Ukraine and Poland in the field of education”; “European network of start-up schools and creation of common innovative environment”; Information Day of EU research program «Horizon 2020 INFO DAY» Energy & Enviroment; “Juridical science at crossroads with higher technical education”.

## XIX International Conference “System Analysis and Information Technologies”

**Date and place:** May 22-25, 2017, National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”, Kyiv, Ukraine

**Partnership:** National Technical University of Ukraine “Igor Sikorsky 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 Igor Sikorsky Kyiv Polytechnic Institute and IASA, the Educational-Scientific Complex "Institute of Applied System Analysis", Oles Honchar Dnipropetrovsk National University.

### **Participants: 201**

- 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	Georgia,
Eastern and Central Europe	Ukraine, Russia, Republic of Moldova, Azerbaijan
South Europe	
North America	

### **Publications:**

**Title:** System Analysis and Information Technology: 19-th International Conference SAIT 2017 (May 22-25, 2017, Kyiv, Ukraine).

**Publishers:** Igor Sikorsky Kyiv Polytechnic Institute (<http://sait.kpi.ua/books/>)

**Year of Publication:** 2017

## Forum “Foresight and Construction of the Strategies of Socio-economic Development of Ukraine on Mid-term (upto 2020) and Long-term (upto 2030) Time Horizons”

**Date and place:** November 17, 2016, National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”, Kyiv, Ukraine

**Partnership:** National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”, Institute for Applied System Analysis MES of Ukraine and of NAS of Ukraine, World Data Center for Geoinformatics and Sustainable Development, Agrarian Superstate Foundation.

### **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	
Arab States	
Asia/Pacific	
Eastern and Central Europe	Ukraine
Western Europe and North America	
Latin America	

### **Publications:**

**Title:** Presentation and Discussion Foresight Socio-economic Development of Ukraine on Mid-term (upto 2020) and Long-term (upto 2030) Time Horizons”

**Publishers:** <http://kpi.ua/16-11-17>

**Year of Publication:** November 17, 2016

**Type of document/material:**

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

**Language(s):** Ukrainian

**Keywords:** model of socio-economic development and humanitarian policy; national economy; agricultural sector; the military-industrial complex; information and communication technologies; creating new substances and materials, nanotechnologies; new energy; high-tech engineering and instrumentation; development of transit infrastructure; development of the human sciences, biomedical engineering, cellular medicine and pharmacy; tourism.

### **3. Interuniversity Exchanges/Partnership**

#### **Visit H.E. Mr. Christian Albertus Basson, Ambassador Extraordinary and Plenipotentiary of the Republic of South Africa to Ukraine**

**Date and place:** June 1, 2016, Igor Sikorsky Kyiv Polytechnic Institute

**Purpose:** familiarization with the university, discussion of potential cooperation between Igor Sikorsky Kyiv Polytechnic Institute and universities, research institutions and enterprises of South Africa

#### **Visit H.E. Ms. Isabelle Dumont, Ambassador Extraordinary and Plenipotentiary of the French Republic to Ukraine**

**Date and place:** June 9, 2016, Igor Sikorsky Kyiv Polytechnic Institute

**Purpose:** familiarization with the university, discussion of cooperation between Sikorsky Kyiv Polytechnic Institute and French universities, including cooperation of double degree programs

#### **Visit H.E. Mr. John Sahr Francis Yambasu, Ambassador Extraordinary and Plenipotentiary of the Republic of Sierra Leone to Ukraine**

**Date and place:** August 17, 2016, Igor Sikorsky Kyiv Polytechnic Institute

**Purpose:** discussion of technical skills training specialist's issues and possible forms of cooperation between ministries, companies and Igor Sikorsky Kyiv Polytechnic Institute

#### **Visit of Prof. Michael Nobel, Member of Alfred Nobel family, the Founder of the Most Prestigious Award in the World**

**Date and place:** September 19, 2016, Igor Sikorsky Kyiv Polytechnic Institute

**Purpose:** familiarization with the university, discussion of cooperation

#### **Visit of Prof. Erik Reinert, Well-known Economist (Norway)**

**Date and place:** October 4, 2016, Igor Sikorsky Kyiv Polytechnic Institute

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

#### **Visit of M.Z. Zgurovsky to French Republic**

**Date and place:** October 24-31, 2016, French Republic

**Purpose:** participation in the consultative meeting of UNESCO

### Visit of M.Z. Zgurovsky to Italian Republic

**Date and place:** November 21-23, 2016, Italian Republic

**Purpose:** participation in the jubilee session of European Network for Accreditation of Engineering Education (ENAE)

### Visit of M.Z. Zgurovsky to French Republic

**Date and place:** December 7-10, 2016, French Republic

**Purpose:** participation in the meeting of the Steering Committee of UNESCO

### Visit H.E. Mr. Manoj Kumar Bharti, Ambassador Extraordinary and Plenipotentiary of the Republic of India to Ukraine

**Date and place:** December 8, 2016, Igor Sikorsky Kyiv Polytechnic Institute

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

### Visit H.E. Mr. Jan Pieklo, Ambassador Extraordinary and Plenipotentiary of the Republic of Poland to Ukraine

**Date and place:** December 14, 2016, Igor Sikorsky Kyiv Polytechnic Institute

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

### Visit of Mr. Juste Jean-Paul Ngome Abiaga, Representative in Charge of UNESCO New Policy

**Date and place:** March 7, 2017, Igor Sikorsky Kyiv Polytechnic Institute

**Purpose:** familiarization with the university, discussion of cooperation

### Visit of H.E. Mr. Lee Yang-Goo, Ambassador Extraordinary and Plenipotentiary of the Republic of Korea to Ukraine

**Date and place:** March 10, 2017, Igor Sikorsky Kyiv Polytechnic Institute

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

### Visit of M.Z. Zgurovsky to Republic of Cyprus

**Date and place:** March 26-30, 2017, Republic of Cyprus

**Purpose:** participation in the meeting of Board of Directors of "Progresstech"

### Visit of H.E. Mr. Lee Yang-Goo, Ambassador Extraordinary and Plenipotentiary of the Republic of Korea to Ukraine

**Date and place:** April 14, 2017, Igor Sikorsky Kyiv Polytechnic Institute

**Purpose:** discussion the issues of creation Ukrainian-Korean Joint Innovation Center in Igor Sikorsky Kyiv Polytechnic Institute

## Visit H.E. Mr. Nurberdi Amanmuradov, Ambassador Extraordinary and Plenipotentiary of Turkmenistan to Ukraine

**Date and place:** April 19, 2017, Igor Sikorsky Kyiv Polytechnic Institute

**Purpose:** familiarization with university, discussion of cooperation between Igor Sikorsky Kyiv Polytechnic Institute and universities of Turkmenistan

## Visit of M.Z. Zgurovsky to Republic of Latvia

**Date and place:** May 11-12, 2017, Republic of Latvia

**Purpose:** participation in the meeting of the European National Members of the International Council for Science

## Visit of M.Z. Zgurovsky to Federal Republic of Germany

**Date and place:** May 14-16, 2017, Federal Republic of Germany

**Purpose:** participation in the meeting of working group association IREG Observatory on Academic Ranking and Excellence



## 4. Publications and multimedia material

1. UNESCO Chair official web-site <http://www.unesco.kpi.ua>

**2. 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. – 2016. – DOI: 10.1287/moor.2015.0746

**Publisher(s):** The Institute of Management Sciences and Operations Research Society of America

**Year:** 2016

**Type of document/material:** journal

**3. Title:** Feinberg E.A., Kasyanov P.O., Zgurovsky M.Z. Uniform Fatou's Lemma // Journal of Mathematical Analysis and Applications. – 2016. – Volume 444, Issue 1. – P. 550-567.

**Publisher(s):** Elsevier

**Year:** 2016

**Type of document/material:** article

**4. Title:** A. Feinberg, Pavlo O. Kasyanov, Michael Z. Zgurovsky Partially Observable Total-Cost Markov Decision Processes with Weakly Continuous Transition Probabilities, Mathematics of Operations Research, Vol. 41, Issue 2, 656-681, 2016, <http://doi.org/10.1287/moor.2015.0746>

**Publisher(s):** INFORMS

**Year:** 2016

**Type of document/material:** article

**5. Title:** Viktor A. Sadovnichiy and Michael Z. Zgurovsky (Eds.), Advances in Dynamical Systems and Control, Studies in Systems, Decision and Control, Volume 69, 2016, Springer, Heidelberg xxii+471pp.

**Publisher(s):** Springer

**Year:** 2016

**Type of document/material:** book

**6. Title:** Zgurovsky M.Z., Kasyanov P.O. Uniform Global Attractors for Nonautonomous Evolution Inclusions // Advances in Dynamical Systems and Control (V.A. Sadovnichiy and M.Z. Zgurovsky (eds.)). Studies in Systems, Decision and Control. – 2016. – Vol. 69. – DOI: 10.1007/978-3-319-40673-2\_3

**Publisher(s):** Springer

**Year:** 2016

**Type of document/material:** chapter in the monograph

**7. Title:** Zgurovsky, M.Z., Romanenko, V.D., Milyavsky, Yu.L. Principles and methods of impulse processes control in cognitive maps of complex systems. Part 1, Journal of Automation and Information Sciences, Volume 48, Issue 3, 2016, Pages 36-45

**Publisher(s):** Begell House

**Year:** 2016

**Type of document/material:** article

**8. Title:** Zgurovsky, M.Z., Romanenko, V.D., Milyavsky, Yu.L. Principles and methods of impulse processes control in cognitive maps of complex systems. Part 2, Journal of Automation and Information Sciences, Volume48, Issue 7, 2016, pages 4-16

**Publisher(s):** Begell House

**Year:** 2016

**Type of document/material:** article

**9. Title:** Foresight and construction of the strategies of socio-economic development of Ukraine on mid-term (upto 2020) and long-term (upto 2030) time horizons / Scientific advisor of the project acad. of NAS of Ukraine M. Zgurovsky // International Council for Science (ICSU); Committee for the System Analysis of the Presidium of NAS of Ukraine; National Technical University of Ukraine «Igor Sikorsky Kyiv Polytechnic Institute»; Institute for Applied System Analysis MES of Ukraine and of NAS of Ukraine; World Data Centre for Geoinformatics and Sustainable Development; Agrarian Superstate Foundation. — 2nd ed. — Kyiv : NTUU «Igor Sikorsky KPI», Publ. house «Polytechnica», 2016. — 184 p.

**Publisher(s):** Polytechnica

**Year:** 2016

**Type of document/material:** book

**10. Title:** Michael Z. Zgurovsky and Zaychenko, Yuriy P. The Fundamentals of Computational Intelligence: System Approach, Studies in Computational Intelligence 652, 2017, XX +375 pp. DOI 10.1007/978-3-19-35162-9

**Publisher(s):** Springer

**Year:** 2017

**Type of document/material:** book

**11. Title:** Zgurovsky M.Z., Gluzman M.O., Gorban N.V., Kasyanov P.O., Paliichuk L.S., Khomenko O.V. Uniform Global Attractors For Non-Autonomous Dissipative Dynamical Systems // Discrete and Continuous Dynamical Systems. Series B. — 2017. — Vol. 22, Iss. 5. — P. 2053-2065. — DOI: 10.3934/dcdsb.2017120.

**Publisher(s):** American Institute for Mathematical Sciences

**Year:** 2017

**Type of document/material:** article

**12. Title:** Sidorenko S.I. Course for Deep University Internationalization. From Vice-Rector in International Collaboration Sergiy Sidorenko's Report on International Activity at 2016. — P. 2

**Publisher(s):** Kyiv Polytechnic

**Year:** 2016

**Type of document/material:** article

**13. Title:** Socio-economic Knowledge-based Society Development Processes Analysis / International Council for Science et al.; M. Z. Zgurovsky, project research supervisor. — Kyiv : Igor Sikorsky Kyiv Polytechnic Institut. — 2017. — 26 p., ISBN 978-966-622-819-5

**Publisher(s):** Electronic edition  
**Year:** 2016  
**Type of document/material:** book

## IV. Outcomes

International activity of Igor Sikorsky Kyiv Polytechnic Institute 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 centres 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 Igor Sikorsky Kyiv Polytechnic Institute use the opportunities of training abroad due to educational grants and programmes; 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 programme “UNESCO-UNITWIN OCW/OER INITIATIVE” (UUOOI). The aim of this programme is to promote integrated research system, professional training, programmes preparation (education, natural sciences, social sciences, the humanities, culture, communications and information) and collaboration between universities based on knowledge transfer “through borders”.

UNESCO Chair in Higher Technical Education, Applied System Analysis and Informatics has actively facilitated participation of Igor Sikorsky Kyiv Polytechnic Institute in the most prestigious world university ratings, such as QS World University Rankings, Thomson Reuters, and U-Multirank.

In 2016 Igor Sikorsky Kyiv Polytechnic Institute was at the top of the ranking "Top 200 Ukraine".

In 2016 Igor Sikorsky Kyiv Polytechnic Institute improved its position in the QS World University Rankings – it has got the category 551-600.

In January, 2017 Igor Sikorsky Kyiv Polytechnic Institute was the second among Ukrainian universities in the ranking Webometrics.

Another direction of activity of the Chair is comprehensive support of participation of university in researchers in international research programmes (HORIZON 2020, ERASMUS+, EURASIA, NATO, etc.). Support of international projects in technology transfer was significantly strengthened.

In 2016 Igor Sikorsky Kyiv Polytechnic Institute participated in 4 educational projects of the European Union within Erasmus+ KA2, 6 projects under the programme Tempus, 3 projects of the Erasmus Mundus programme, 45 projects within Erasmus+ KA1, 3 projects under the programme EURASIA, 2 projects within British Council programme, 3 projects of the Horizon 2020 programme, 4 projects under the 7<sup>th</sup> Framework Programme, 3 NATO projects, the UNIDO project and other international projects. Currently, students and teachers may participate in all projects of programmes mentioned above.

There is the National Contact Point of the EU Horizon 2020 Programme in such fields as "Information and communication technologies" and "Climate and resource use efficiency including raw materials" on the basis of Igor Sikorsky Kyiv Polytechnic Institute.

3 international scientific and practical conferences were held at Igor Sikorsky Kyiv Polytechnic Institute with the assistance of the Representation of the Polish Academy of Sciences in Kiev during 2016.

During 2016 with the active participation of the UNESCO Chair at the Igor Sikorsky Kyiv Polytechnic Institute specialized workshops were conducted in order to familiarize scientific community of the University with the features of submission of applications for participation in international programmes, 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.

The Ukrainian Festival of Innovative Projects "Sikorsky Challenge 2016" was held in Igor Sikorsky Kyiv Polytechnic Institute. It is the largest technological and innovation event in Ukraine, which gathers young inventors from almost all regions of Ukraine. The purpose of the Festival is to attract pupils and students, scientists and entrepreneurs to participate in research programmes and design activities for their further commercialization, facilitate the creation of startups and output of innovative products in the international and national markets.

In 2016 the Festival was held for the fifth time and combined the contest of innovative ideas "Sikorsky Challenge 2016" and the contest "Intel-Techno Ukraine 2016-2017", which is the national round of the World Competition of scientific and technical creativity of schoolchildren "Intel ISEF". Participants of the competitions represented almost 300 developments at the Festival. Young researchers of the Minor Academy of Sciences of Ukraine also took an active part in the event.

Due to the active work of the UNESCO Chair in Higher Technical Education, Applied System Analysis and Informatics, the international cooperation has become the integral part of Igor Sikorsky Kyiv Polytechnic Institute and IASA for the last years. It creates the favourable conditions for future integration to the international and, in particular, European educational, scientific and informational space and promotes introduction of the reforms which were started with the Bologna process.

## VI. Forthcoming Activities

### XVIII International Scientific and Practical Conference “Renewable Energy and Energy Efficiency of the XXI Century”

**Date and place:** September 27-29, 2017, Igor Sikorsky Kyiv Polytechnic Institute, Kyiv, Ukraine

**Partnership:** National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”, Representative office of the Polish Academy of Sciences in Kyiv, National Academy of Sciences of Ukraine, State Agency on Energy Efficiency and Energy Saving of Ukraine, Scientific and Technical Union of Ukrainian experts and electricians in power engineering, Institute of Renewable Energy at National Academy of Sciences of Ukraine, Inter-Branch Scientific and Technical Center for Wind Power Engineering at NASU, Ukrainian Industrial Wind Power Plants Association, UNESCO Chair in Higher Technical Education, Applied System Analysis and Informatics at Igor Sikorsky Kyiv Polytechnic Institute and Institute for Applied System Analysis, Ukrainian-Polish Center of development renewable energy sources and energy efficiency

### VI Ukrainian Festival of Innovation Projects “Sikorsky Challenge 2017”

**Date and place:** October 10-13, 2017, Igor Sikorsky Kyiv Polytechnic Institute, Kyiv, Ukraine

**Partnership:** National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”, Science Park "Kyivska Politechnica".

### V International Scientific and Practical Conference “Clean Water. Fundamental, Applied and Industrial Aspects”

**Date and place:** October 26-27, 2017, Igor Sikorsky Kyiv Polytechnic Institute, Kyiv, Ukraine

**Partnerships:** National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”, Representative office of the Polish Academy of Sciences in Kyiv, National Academy of Sciences of Ukraine, UNESCO Chair in Higher Technical Education, Applied System Analysis and Informatics at Igor Sikorsky Kyiv Polytechnic Institute and Institute for Applied System Analysis, Science Park "Kyivska Politechnica", Ukrainian-Polish Center at Igor Sikorsky Kyiv Polytechnic Institute, Lublin University of Technology, Society of Ecological Chemistry and Engineering, LLC Technologies of Nature.

## 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 “Igor Sikorsky Kyiv Polytechnic Institute”.

UNESCO Chair in Higher Technical Education, Applied Systems Analysis and Informatics at Igor Sikorsky Kyiv Polytechnic Institute 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 in Higher Technical Education, Applied System Analysis and Informatics along with typical areas of activity plans to expand its activities in the field of innovation activity. A striking example is holding of the Festival of Innovative Projects "Sikorsky Challenge" in Igor Sikorsky Kyiv Polytechnic Institute. The Festival unites people for whom the sense of life is the opportunity to realize their ideas to improve the world.

In 2017–2018 Igor Sikorsky Kyiv Polytechnic Institute is going to proceed with implementation of the following projects:

– Project "Approximation Methods for Molecular Modelling and Diagnosis Tools" [AMMODIT] EU Framework Programme for Research and Innovation "Horizon 2020";

- Project "Development of a Network Infrastructure for Youth Innovation Entrepreneurship Support on Fablab Platforms" Programme "Erasmus +";
- Project "Harmonising Water Related Graduate Education" Programme "Erasmus +";
- Project "Master-level Studies in Information Systems" Programme "Erasmus +".

UNESCO Chair "Higher Technical Education, Applied Systems Analysis and Informatics" at Igor Sikorsky Kyiv Polytechnic Institute continues to implement activities in order to enhance level of training quality by increasing the number of international projects and Programmes with foreign partner universities, where students will have an opportunity to undergo training/ internship at renowned foreign universities and gain experience of international education.

Activities of the UNESCO Chair "Higher Technical Education, Applied System Analysis and Informatics" focuses on solving urgent problems of modern higher technical education, in particular the objectives defined in 2030 Agenda for Sustainable Development.

Igor Sikorsky Kyiv Polytechnic Institute 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.