

Progress Report for the Renewal of a UNESCO Chair or UNITWIN Network

The purpose of this Progress Report is to update the Secretariat about activities of the UNESCO Chair or UNITWIN Network since their establishment relative to the objectives in the signed Agreement (Article 2), with a focus on the last four years. UNESCO Chairs and UNITWIN Networks seeking renewal should share their proposed workplans and consider areas in which the Chair or Network might be further strengthened, including enhanced cooperation between higher education institutions, other UNESCO Chairs and UNITWIN Networks, and UNESCO entities worldwide.

The Secretariat welcomes comprehensive reports of the activities, outputs and contributions of UNESCO Chairs and UNITWIN Networks. The report can be uploaded as an attachment and relevant information extracted to complete this Progress Report form.

When preparing the Progress Report, please refer to the criteria for establishment of a UNESCO Chair or UNITWIN Network in the revised version of [The UNITWIN/UNESCO Chairs Programme: guidelines and procedures](#) (Annex B), which will be used to assess requests for renewals.

For more information, please contact: unitwin@unesco.org

Title of the UNESCO Chair or UNITWIN Network as mentioned in the Agreement	UNESCO Chair in Technical Higher Education, Applied Systems 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"
Chair/Network ID (if known)	UNESCO Chair in Technical Higher Education, Applied Systems Analysis and Informatics/403
Reporting period: YYYY-YYYY	June, 2019 – December, 2022

I. PROGRESS REPORT

a. Summary of Main Achievements

Please describe the overall progress of the Chair or Network as a member of the UNITWIN/UNESCO Chairs Programme and 3-5 main achievements relating to its Objectives, including one from the last four years. Illustrate how the Chair or Network and its activities have contributed to UNESCO's mission, mandate and priorities, programme, and its impacts on intended beneficiaries. For this reporting period, highlight examples of publications, conferences, community engagement, collaborative research partnerships, international cooperation, and student/staff exchanges or a combination of these. [750 words max]

Publications:

- 1) Title: Michael Z. Zgurovsky, Yuriy P. Zaychenko. Big Data: Conceptual Analysis and Applications, 2019. – Volume 58. – 277 p.
Publisher(s): Springer
Year: 2019
Type of document/material: book
- 2) Title: Michael Z. Zgurovsky, Ciro D'Apice, Umberto De Maio, Nataliia V. Gorban, Pavlo O. Kasyanov, Oleksiy V. Kapustyan, Olha V. Khomenko, Jose Valero. Uniform Global Attractor for a Class of Nonautonomous Evolution Hemivariational Inequalities with Multidimensional "Reaction-Velocity" Law, 2021. – Chapter 15. – P. 347-368
Publisher(s): Springer
Year: 2021
Type of document/material: book
- 3) Title: S. Shukayev, O. Sulema, L. Vlasiuk. European priorities in the area of renewable energy in the Horizon Europe Programme, 2022. – P. 23-24
Publisher(s): Igor Sikorsky Kyiv Polytechnic Institute
Year: 2022
Type of document/material: conference proceedings

Conferences:

The 6th International Scientific and Practical Conference "Clear Water. Fundamental, Applied and Industrial Aspects"

- **Date and venue:** November 14-15, 2019, National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute", Kyiv, Ukraine
- **Organizers:** Igor Sikorsky Kyiv Polytechnic Institute, National Academy of Sciences of Ukraine, UNESCO Chair in Higher Technical Education, Applied System Analysis and Informatics at Igor Sikorsky Kyiv Polytechnic Institute, Corporation "Science Park "Kyivska Polytechnika", Ukrainian-Polish Center of Igor Sikorsky Kyiv Polytechnic Institute, Technologies of Nature LLC (Ukraine), Polish Academy of Sciences in Kyiv, Lublin University of Technology (Poland), Society of Ecological Chemistry and Engineering (Poland).

The 21st International Scientific and Practical Internet-Conference "Renewable Energy and Energy Efficiency of the 21st Century"

- **Date and venue:** May 14-15, 2020, Igor Sikorsky Kyiv Polytechnic Institute, Kyiv, Ukraine
- **Organizers:** Igor Sikorsky Kyiv Polytechnic Institute, Warsaw University of Technology, Representative office of the Polish Academy of Sciences in Kyiv, Institute of Renewable Energy at National Academy of Sciences of Ukraine, Junior Academy of Sciences of Ukraine, Inter-Branch Scientific and Technical Center for Wind Power Engineering at NASU, Ukrainian Hydrogen Council, UNESCO Chair in Higher Technical Education, Applied System Analysis and Informatics at Igor Sikorsky Kyiv Polytechnic Institute.

The 22nd International Scientific and Practical Conference “Renewable Energy and Energy Efficiency of the 21st Century” (online)

- **Date and venue:** May 20-21, 2021, Igor Sikorsky Kyiv Polytechnic Institute, Kyiv, Ukraine
- **Organizers:** Igor Sikorsky Kyiv Polytechnic Institute, Warsaw University of Technology, Representative Office of the Polish Academy of Sciences in Kyiv, Institute of Renewable Energy at National Academy of Sciences of Ukraine, Junior Academy of Sciences of Ukraine, Inter-Branch Scientific and Technical Center for Wind Power Engineering at NASU, Ukrainian Hydrogen Council, UNESCO Chair in Higher Technical Education, Applied System Analysis and Informatics at Igor Sikorsky Kyiv Polytechnic Institute and the Institute for Applied System Analysis.

The 7th International Scientific and Technical Conference “Pure Water. Fundamental, Applied and Industrial Aspects” (online)

- **Date and venue:** November 25-26, 2021, Igor Sikorsky Kyiv Polytechnic Institute, Kyiv, Ukraine
- **Organizers:** Igor Sikorsky Kyiv Polytechnic Institute, 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, Corporation “Science Park “Kyivska Polytechnika”, Ukrainian-Polish Center of Igor Sikorsky Kyiv Polytechnic Institute, Technologies of Nature LLC (Ukraine), Representative Office of the Polish Academy of Sciences in Kyiv, Lublin University of Technology (Poland), Society of Ecological Chemistry and Engineering (Poland).

The 23rd International Scientific and Practical Conference “Renewable Energy and Energy Efficiency of the 21st Century” (online)

- **Date and venue:** May 19-20, 2022, Igor Sikorsky Kyiv Polytechnic Institute, Kyiv, Ukraine
- **Organizers:** Igor Sikorsky Kyiv Polytechnic Institute, Warsaw University of Technology, Representative Office of the Polish Academy of Sciences in Kyiv, Institute of Renewable Energy at National Academy of Sciences of Ukraine, Junior Academy of Sciences of Ukraine, Inter-Branch Scientific and Technical Center for Wind Power Engineering at NASU, Ukrainian Hydrogen Council, UNESCO Chair in Higher Technical Education, Applied System Analysis and Informatics at Igor Sikorsky Kyiv Polytechnic Institute and the Institute for Applied System Analysis.

Collaborative research partnerships, international cooperation, and student/ staff

exchanges:

Project “NTNU-KPI Collaboration within Industry 4.0 Education”

- **Duration:** 2018-2022
- **Partnership:** Igor Sikorsky Kyiv Polytechnic Institute, Norwegian University of Science and Technology (NTNU)
- **Main purpose:** to provide attractive education within Sustainable Manufacturing through the exchange of knowledge between NTNU and KPI.

Project “Resilience of Education: Sustainable and Cooperation for Ukrainian Universities”

- **Duration:** 2022-2024
- **Partnership:** Igor Sikorsky Kyiv Polytechnic Institute, Uppsala University (Sweden) and Poznan University of Technology (Poland)
- **Main purpose:** the project is aimed at contributing to the resilience of wartime Ukraine’s educational institutions and supporting Ukrainian teachers, students and researchers who remain in Ukraine and work or study at Ukrainian universities.

b. Cooperation with UNESCO

Explain how the UNESCO Chair or UNITWIN Network has engaged with UNESCO’s mission and mandate, priorities and programme, UNESCO entities and networks, other UNESCO Chairs and/or UNITWIN Networks, Category II Centres and National Commissions for UNESCO. How do you plan to continue and/or deepen such engagement in the future? [200 words max]

The UNESCO Chair at Igor Sikorsky Kyiv Polytechnic Institute is a member of the Ukrainian National Network of UNESCO Chairs, and a participant in the annual meetings of the National Commission of Ukraine for UNESCO.

Among international UNESCO Chairs, the UNESCO Chair at Igor Sikorsky Kyiv Polytechnic Institute has a particularly successful history of cooperation with the UNESCO Chair in Business Administration at the Bucharest University of Economic Studies, Romania. For instance, on October 26-27, 2017, members of our UNESCO Chair, together with the Business Administration Chair, took part in the Second Open Meeting of the Balkan UNESCO Chairs in Bucharest; on November 1-2, 2018 they participated in the conference «Challenges of Interdisciplinary Entrepreneurial Universities and Education in Europe within SDG-4»; and on October 15-16 2020, they took part in the 3rd International Conference on Innovative Models for the Renewal of Global Economy organized by the Bucharest University of Economic Studies.

Our UNESCO Chair plans to continue its collaboration activities with UNESCO entities and other Chairs both on a national and an international level, through engaging in events organized/coorganized by the National Commission of Ukraine for UNESCO, and through increasing its participation in educational and research projects with international consortia.

c. Collaborations with higher education institutions and other partners

Explain how the UNESCO Chair or UNITWIN Network collaborated with research and higher education institutions, and other partners in different world regions, including South-South and South-South-North cooperation. How could such collaborations be strengthened and expanded? [200 words max]

Through educational and research projects and international collaboration networks, the UNESCO Chair at Igor Sikorsky Kyiv Polytechnic Institute is actively engaged in inter-institutional collaboration with HEIs from various regions of the world, including the Global South. The number and variety of these partners is too large to list here.

As one example, on September 14-17, 2020, Igor Sikorsky Kyiv Polytechnic Institute, together with its partner, the Norwegian University of Science and Technology, co-organized the Summer School “Sustainable Manufacturing in Industry 4.0: Technologies and Solutions” as part of a Norwegian-Ukrainian educational project financed by HK-dir. Along with participants from European HEIs - e.g. Poznan University of Technology (Poland), Riga Technical University (Latvia), Chemnitz University of Technology (Germany) and others – the Summer School has attracted students from several South regions, e.g. Shaheed Zulfikar Ali Bhutto Shaheed Institute of Science (Pakistan), Komar University of Science and Technology (Iraq), Foreign Trade University (Vietnam), Mawlana Bhashani Science and Technology University (Bangladesh), as well as SME representatives from Pakistan and Nigeria.

In the future, our UNESCO Chair plans to expand its cooperation with foreign institutions by leveraging the opportunities presented by international funding programmes and engaging in activities promoted by UNESCO and other international networks/organizations.

d. Challenges and remedial actions

What were the main challenges and how were these addressed? [200 words max]

The biggest and most difficult challenge that our UNESCO Chair is facing right now is Russia's war of aggression against Ukraine. For Igor Sikorsky Kyiv Polytechnic Institute, the war has led to a significant loss of students and academic staff due to them seeking refuge abroad, and, in some cases, losing their lives; a negative impact on the mental well-being of the remaining students and staff; a worsening of working conditions due to Russia's continuing attacks on the Ukrainian power grid and subsequent blackouts; and financial hardships due to severe budgetary cuts to the science and education sector. While it's impossible to solve most of these issues while the war is ongoing, the university has been seeking international support to improve the situation; e.g. in June 2022, the UNESCO Chair submitted a project proposal entitled “Modernization of the Laboratory for Public Health and Biosafety at Igor Sikorsky Kyiv Polytechnic Institute” to UNESCO as a request for assistance to help cope with the impacts of the war. To minimize the impacts of ‘brain drain’, the Chair also puts efforts into maintaining collaborative relationships with displaced university employees all over the world.

II. REQUEST FOR RENEWAL

The following section is to be completed if a request for renewal is being submitted.

a. Objectives

Summarize the proposed project/programme of work and its objectives for the renewal period, referring to the Objectives in Article II of the Agreement. Are you proposing any revisions to Article II? [200 words max]

The UNESCO Chair at Igor Sikorsky Kyiv Polytechnic Institute does not propose any revisions to the original Agreement (signed January 16, 1999), and intends to continue its operations in accordance with the objectives defined in Article 3.

To reach these objectives, the Chair's operations are presently focused on the following areas:

- Fostering of international educational, research and innovation cooperation, training of personnel, and development of learning curricula.
- Facilitation of the participation of University's researchers in international programs of cooperation in the realm of education and research.
- Organization and implementation of international events with aim to resolve the pressing problems of present-day higher technical education and science, as well as to achieve the goals laid down in the 2030 Agenda for Sustainable Development that had been adopted by the United Nations General Assembly.
- Strengthening of regional, national and bilateral cooperation in higher technical education, applied system analysis and informatics.
- Promotion of Igor Sikorsky Kyiv Polytechnic Institute's participation in global university rankings.

b. Workplan activities and expected outputs

Describe the expected outputs for the renewal period, and the associated activities or tasks. Specify the timeline and geographical scope of the activities, with particular attention to strengthening inter-university cooperation and international partnerships. Highlight interdisciplinary and/or future-oriented approaches to be used. Provide detail on the communication and outreach activities that are planned. The outputs and activities may be organized by type: (a) research and knowledge production; (b) publications; (c) websites and social media; (d) teaching and lecturing; (e) training and institutional capacity development; (f) student mobility and exchanges; (g) visiting professorships/fellowships; (h) conferences and events; (i) seminars and webinars; (j) networking and partnerships; (k) inter-university cooperation; (l) other.

[1500 words max]

The UNESCO Chair's activities during the renewal period will be aimed at further addressing the pressing issues of higher technical education, including contributing to the achievement of goals defined in the 2030 Agenda for Sustainable Development.

(a) Research and knowledge production

The UNESCO Chair plans to widen the range of its activities in the field of innovation. An example of this intention is the hosting of the "Sikorsky Challenge" Festival of Innovative Projects at Igor Sikorsky Kyiv Polytechnic Institute, which is regarded as one of the most important annual events in the field of innovation in Ukraine.

(b) Publications

The UNESCO Chair's future achievements will be comprehensively covered in media through research and general publications, international conference presentations and other appropriate means.

(c) Websites and social media

To inform the general public of the Chair's developments and achievements, the Organizational branch will continue maintaining the Chair's website at <http://www.unesco.kpi.ua>. The website contains up-to-date information about projects, initiatives and events that the Chair is involved in.

(d) Teaching and lecturing

An important aspect of the Chair's work is the development and implementations of training, retraining and advanced training programs for experts in different areas of higher technical education, with a specific focus on the interdisciplinary approach to topics related to informatics and applied system analysis. The Chair plans to maintain this focus in its future operations.

(f) Student mobility and exchanges

The UNESCO Chair will continue assisting Igor Sikorsky Kyiv Polytechnic Institute students in receiving national and international grants for educational, research and cultural projects.

(g) Visiting professorships/fellowships

The Chair's activities will be geared towards expanding the cooperation between experts in the realms of education, science and culture on both the national and international levels.

(h) Conferences and events

Throughout the renewal period, a significant part of the UNESCO Chair team's efforts will be directed towards the organization and implementation of conferences, seminars, webinars and other events aimed at addressing the pressing issues of higher technical education. Regular events that the Chair is traditionally involved in include:

- The "Sikorsky Challenge" Festival of Innovation Projects
- The International Scientific and Practical Conference "Renewable Energy and Energy Efficiency of the 21st Century";
- The International Scientific and Technical Conference "Pure Water. Fundamental, Applied and Industrial Aspects";
- The International Scientific Conference for Students, Postgraduates and Young Scientists "Systems Analysis and Information Technologies".

(j) Networking and partnerships

The UNESCO Chair at Igor Sikorsky Kyiv Polytechnic Institute will continue to cooperate with the National Commission of Ukraine for UNESCO, the Ukrainian network of UNESCO Chairs, and international partner organizations. During the renewal period, the Chair plans to extend its cooperation with the following university networks:

- Baltic University Programme;
- Black Sea Universities Network;

- Danube Transfer Centers Network.

(k) Inter-university cooperation:

The UNESCO Chair at Igor Sikorsky Kyiv Polytechnic Institute plans to continue and deepen its existing cooperation with HEIs from different regions of the world, with a special focus on countries of the Global South, including Algeria (Université Saad Dahlab Blida), Brunei Darussalam (Universiti Brunei Darussalam) China (Zhejiang University of Technology, Shandong University of Science and Technology and others), India (Chandigarh University), Iraq (Duhok Polytechnic University), Malaysia (Universiti Malaysia Perlis), Mexico (National Polytechnic Institute of Mexico), Republic of South Africa (University of Pretoria) and other partner institutions. We will also seek to develop new partnerships through opportunities offered by international university networks, R&I cooperation programs, UNESCO networking events etc.

c. Human and financial resources

Provide a breakdown of overall budget (in USD) for the renewal period, including detail on budget secured, contributions from the institution(s) and plans to raise additional funds (e.g.: donors, public/private sectors, and other UN agencies). The budget can be prepared by outputs/activity or by type of expenditure such as staffing, events, contracted services, external training and events, grants, equipment and maintenance, communications and other expenses.

Human Resources:

1. For the administration of the UNESCO Chair:

Coordinator	Prof. Sergiy Sidorenko (part-time)
Academic Secretary	Prof. Sergiy Shukayev (part-time)
Assistant to the Academic Secretary	Olena Kizub (part-time)

2. For the teaching/training/research activities:

The UNESCO Chair consists of the following sections:

- Section for HIGHER TECHNICAL EDUCATION, headed by academician of the National Academy of Sciences of Ukraine Prof. Yuriy Yakimenko, First Vice-Rector of Igor Sikorsky Kyiv Polytechnic Institute;
- Section for APPLIED SYSTEM ANALYSIS, headed by Prof. Natalia Pankratova, Vice-Director of the Institute for Applied System Analysis;
- Section for INFORMATICS, headed by Prof. Yaroslav Kornaga, Dean of the Faculty of Informatics and Computer Engineering of Igor Sikorsky Kyiv Polytechnic Institute;
- ORGANIZATIONAL BRANCH, headed by Prof. Sergiy Shukayev, Head of the International Projects Office and Deputy Head of International Collaboration Department of Igor Sikorsky Kyiv Polytechnic Institute.

Financial Resources:

Host Institution 9,000 x 4 = \$36,000
Other Private 500 x 4 = \$2,000

Three employees of the International Collaboration Department of Igor Sikorsky Kyiv Polytechnic Institute, whose work is financed by the University, have part-time employment at the UNESCO Chair.

1) Personnel costs: $4,000 \times 4 = \$16,000$ (for 4 years).

2) Rental costs (equipment, infrastructure or other assets): $4,000 \times 4 = \$16,000$ (for 4 years).

3) Other goods and services (consumables and supplies, translations and publications and other): $5,500 \times 4 = \$22,000$ (for 4 years).

TOTAL: 54,000 \$.

d. Reflections

Overall, why should this Chair or Network be renewed as a member of the UNITWIN/UNESCO Chairs Programme? Kindly also provide any additional reflections on how the Chair or Network might be further strengthened and how its activities and ways of working could be improved. [200 words max]

The UNESCO Chair at Igor Sikorsky Kyiv Polytechnic Institute plans to continue its mission under the UNITWIN/UNESCO Chairs Programme, contributing to the fulfillment of UNESCO priorities in the fields of education, human rights, environmental protection, humanities, applied science and communication, with a unique focus on higher technical education and the interdisciplinary aspects of informatics and applied system analysis. Through adhering to the objectives defined in its original agreement, the UNESCO Chair at Igor Sikorsky Kyiv Polytechnic Institute has been serving as a strategic think-tank on higher technical education both for the host university and the wider Ukrainian academic community. The Chair also links the university's experts and other Ukrainian actors in the field of technical higher education, informatics and system analysis to the international community, which is a particularly important goal considering the damage inflicted on Ukraine's education and research capacity by the ongoing war, and future plans related to the post-war reconstruction of Ukraine.

ANNEX: COMPREHENSIVE PROGRESS REPORT

UNESCO Chairholders and UNITWIN Network Coordinators are encouraged to submit a comprehensive report of progress against overall objectives, including details of the contributions to UNESCO's mission, mandate, priorities and programme, including research, training and capacity development, partnerships, areas of cooperation, outputs, and an assessment of the impact of its activities on intended beneficiaries.

Although the submission of a comprehensive progress report is encouraged it is not a requirement for renewal of the UNESCO Chair or UNITWIN Network.