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Kazan  
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UNIVERSITY



ICYF  
International  
Congress of  
Youth Federation



# II OIC Youth Scientific Congress

26-29 November, 2023  
Kazan, Republic of Tatarstan



## II OIC YOUTH SCIENTIFIC CONGRESS

26-29 November 2023

II OIC Youth Scientific Congress (hereinafter - Congress) is organized by the Academy of Youth Diplomacy, Kazan Federal University, Ministry of Youth Affairs of the Republic of Tatarstan in partnership with OIC Standing Committee on Scientific and Technological Cooperation (COMSTECH), Islamic Cooperation Youth Forum (ICYF), Federal Agency for Youth Affairs (Rosmolodezh) and All-Russian Public-State Movement of Children And Youth "Movement of the First".

Main agenda of the II Congress is public welfare in the context of new global challenges. The Congress involved young researchers from Russia and OIC countries in the dialogue for the second time aiming at the scientific and technological as well as innovative development of all participating countries and the global university communities. The sections provide the participants with an opportunity to discuss the most actual research problems and opportunities as well as to share their own experience and encourage for further cooperation.

More than 1,000 people from 72 countries took part in the application campaign of the Congress in 2023, and only 100 delegates were selected for offline participation and publication – young scientists, researchers, and innovators aged 18-35 from OIC member states and observer states: Azerbaijan, Bangladesh, Cameroon, Chad, Egypt, Jordan, Indonesia, Iran, Kazakhstan, Kyrgyzstan, Lebanon, Morocco, Mozambique, Niger, Nigeria, Pakistan, Palestine, Russia, Senegal, Tajikistan, Türkiye, Turkmenistan, Uzbekistan.

The II Congress focuses on the following tracks:

### 1. Current Challenges in Biomedicine and Biotechnology

The section will be focused on improving life quality via healthcare and green technologies. The section is devoted but not limited to new approaches in diagnostics, prevention and treatment of various diseases, including infectious diseases, cancer and genetic disorders, current trends in the development of medicines and treatments based on gene and cell therapy approach to the cultivation of native and genetically modified cells for tissue engineering, promising methods for disease diagnosis and personalized drug selection, the development of new antimicrobial agents and therapeutic approaches, biotechnologically produced drugs and treatment tools, biological active compounds and biocompatible materials.

### 2. Modern Educational Technologies: Interdisciplinary Research and Practice

The section is devoted to the problem of modern educational technologies in the world. They make it possible to emphasize social and human values, the well-being of nations, and to make decisions in the era of artificial intelligence expansion. The section will consider a wide range of interdisciplinary research questions that arise at the intersection of different sciences, directions. Their solution opens wider horizons of discoveries for theorists and practitioners in education.

Special attention will be paid to the organization of the educational process in various educational institutions, including non-formal education, taking into account the conditions of cross-culturalism, polylingualism. The results of applied research in the field of digitalization of the educational process, migration pedagogy, risk-oriented education, professional mentoring, technologies for the development of critical thinking of students, motivation, and research competencies of educators will be presented.

### 3. Understanding the development of Modern International Relations and International Law in Education and Research: global and regional perspective

The section is devoted to the discussion of current issues of international legal cooperation in the field of education and research and development of modern international relations. The main objective is to consider issues related to international political communication, international business and diplomacy, digital security, and sustainable development in an interdisciplinary way. The formation of a worldview based on the dialogue of cultures and civilizations in a multipolar world is also seen here as an important goal.

The most successful approaches developed at the level of international organizations and individual States, as well as ways to balance the interests of parties concerned, will be considered. Relevant international legal acts as well as institutional mechanisms will be discussed.

Education, research and, more broadly, culture are the most fruitful areas for cooperation and the most important parts of economic growth, a key element of sustainable development and general well-being. Particular attention will be paid to current issues and prospects for improving international legal cooperation in the field of education and research between Member and Observer States of the Organisation of Islamic Cooperation.

### 4 Architecture, Design, Art

The section is devoted to the issues in the fields of architecture, design, art and creative industries, as well as their interdisciplinary interaction. The study of the main problems in these areas, which form practical experience and results, helps to create an environment for human life.

Architecture is considered from the standpoint of its historical development, modern trends, as well as futuristic concepts. Particular attention is paid to the preservation of historical heritage and eco-friendly design.

Design surrounds us everywhere and it is design that forms our impression of any product that we use in our daily life. That is why it is so important to develop modern technologies in design, as well as to comprehend their role in the life of society.

Art is seen as the language of interaction between the artist, sculpture, photographer, and the audience. A new interpretation of classical art and a futuristic vector for the development of contemporary art are shaping our visual environment.

### 5. Petroleum Geology, Oil and Gas Technologies

In the context of the global energy crisis and regional and national energy sustainability issues, it is becoming more important to develop deposits of hydrocarbons with hard-to-recover reserves. High-viscosity hydrocarbons, shale oil and gas fields, low-porosity reservoirs, and fields with a complex geological structure require special approaches to geological prospecting and exploration, as well as the application of new development technologies. The development of import-substituting technologies, reagents, and equipment aimed at solving the production of hydrocarbons from such reserves is also becoming a very topical issue. There is a need to move to a more rational development of hydrocarbon resources, use more environmentally friendly and efficient methods of development, and improve the quality of life of the population. The section will provide a platform for discussion, exchange of views, and presentation of solutions in the field of hard-to-recover hydrocarbons, as well as discussion of future joint projects.

## FOREWORD

*Dear participants of the II Congress!*  
*Dear young scientists!*

I am happy to welcome you at the II OIC Youth Scientific Congress! This event is highly important for both our country and the Republic of Tatarstan. These days Kazan has become the platform for the interaction for young scientists, researchers, innovators from the Russian Federation and OIC countries. In the era of global challenges, one of the major goals for the social and economic development in our regions and countries is to support young scientists and to strengthen intercultural communication.

There are more than 1 million young people aged 14 to 35 in the Republic of Tatarstan. They are students, young specialists, teenagers, and young families. The upcoming 2024 year was declared as the year of Science and Technologies in the Republic of Tatarstan, therefore we would like to establish the Congress as a wonderful tradition and a platform for scientific dialogue.

Without any doubt, the II Congress will provide opportunities for the discussion in such research fields as architecture, design, art, modern educational technologies, petroleum technologies, modern international relations and international law, current research in biomedicine and biotechnology.

I wish you fruitful work and look forward to mutually beneficial cooperation!

**H.E. Mr. Rinat Sadykov**  
**Minister of Youth Affairs of the Republic of Tatarstan**

*Dear friends!*

I am pleased to welcome you at the II OIC Youth Scientific Congress, which is held for the second time at Kazan Federal University, Tatarstan under support of the Ministry of Youth Affairs of the Republic of Tatarstan, Academy of Youth Diplomacy, Standing Committee for Scientific and Technological Cooperation (COMSTECH), and Federal Agency for Youth Affairs (Rosmolodezh).

Today, the Organization of Islamic Cooperation unites 57 states with a population of about 1.5 billion people. Among its priorities, a special place is given to involving young people in inter-country and intercultural dialogue, particularly for the development of international youth scientific ties.

Russia also pays much attention to this issue. The Republic of Tatarstan leads the "Russia-Islamic World" Strategic Vision Group and actively cooperates with the OIC countries in a wide range of areas, including scientific and educational partnership.

This year's Congress is dedicated to the crucial issue of public well-being in face of new global challenges. Your knowledge, your ideas, your skills and energy - everything should work to solve the most urgent and complex problems of our time for the benefit of our countries and peoples, for the sake of peace, progress and science.

I wish the participants productive work, new discoveries, and great achievements!

We are always glad to see you at Kazan Federal University.

**H.E. Mr. Lenar R. Safin**  
**Rector of Kazan Federal University**

In a world where research and innovation are universally acknowledged as pivotal engines of economic growth, social advancement, and enlightenment, this 2nd OIC Youth Scientific Congress stands as a testament to the unyielding spirit of inquiry and discovery. At the zenith of creativity and innovation, young scientists are the vanguards of this age and its trends. Their work has left an indelible mark that will shape generations and catapult human understanding to new heights.

After all, scientific knowledge thrives on diversity regarding its methods, experiences, and the minds that forge it. The OIC 2025 Programme of Action emphasizes that research is the pathway to a knowledge-based, innovation-driven economy. Yet, OIC Member States currently only allocate a mere 0.46% of their GDP to Research and Development, starkly contrasting the 2.3% world average and 8.1% average for non-OIC developing countries. In response, the ICYF in alignment with the OIC Youth Strategy has reiterated the importance of cultivating science and the capacity for innovation. This strategy encompasses nurturing specialized education institutions, fostering youths' participation in science and technology, evaluating the efficacy of education programs in these fields, and enhancing opportunities for international cooperation and mobility. Research skills are increasingly valued across various sectors beyond academia, with the data analysis industry in particular being expected to witness exponential growth. Early career scholars are essential to innovation and creation in this scientific endeavor, and their role in conducting experiments, contributing to significant research projects, and embracing new ideas and methods is irreplaceable.

To improve the current situation, the ICYF believes in developing research capacity and quality, increasing public and private funding, enhancing researchers' mobility, supporting international research initiatives, creating long-term development opportunities, and ensuring the practical application of scientific discoveries. Youths' involvement can be fostered through various initiatives, such as peer-to-peer research programs, accessible capacity-building

platforms, diverse learning mobility programs, regular research fairs designed for multiple educational levels, mentoring programs, grants for young researchers and professors, research assistantships, and awards recognizing young scientists' contributions.

This congress is an essential step toward realizing these goals by offering a platform for sharing knowledge, enhancing collaboration, and inspiring the next generation of scientists, researchers, and experts. Let us embark on this journey with you all together and promote an inclusive and progressive scientific landscape that is attuned to the challenges and opportunities of our time.

**H.E. Mr. Taha Ayhan**  
**The President of the Islamic Cooperation Youth Forum**

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## Chapter 1. CURRENT CHALLENGES IN BIOMEDICINE AND BIOTECH- NOLOGY

### 1.1 CRISPR/Cas9 and Carbon nanotube as gene editing tool for Specific and Controlled delivery

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**RISPR/Cas9** (Clustered and efficiently deliver it to target Regularly Interspaced Short sites in vivo. Nanotechnology has Palindromic Repeats-associated greatly contributed to cancer drug protein 9) is a potent technology delivery. In this paper, we discuss for gene-editing. Owing to its high CRISPR/Cas9 with single walled specificity and efficiency, CRISPR/ carbon nanotube as a cargo and Cas9 is extensively used for human controlling agent to the site. diseases treatment, especially for

cancer, which involves multiple genetic alterations. Different The CRISPR-Cas9 system concepts of cancer treatment by introduce a change (mutation) into CRISPR/Cas9 are established. the DNA. These are: an enzyme, However, significant challenges called Cas9. This acts as a pair of remain for its clinical applications. 'molecular scissors' that can cut the The greatest challenge for CRISPR/ two strands of DNA at a specific Cas9 therapy is how to safely location in the genome so that

advertisement, brand identity and other components of communicational design.

The major finding is as follows: successful design examples are built on balance of child fun and adult perception of life. Young people have different preferences in music, fashion, films and etc., but all of them share the same idea about specific relationship that creates between brands and their audience. The major customers' interest of the advertising agencies is to attract the attention of the target audiences and make a positive statement about the product. Although the designers' point of view and life experience differ from the point of view and experience of their young audience, it is still possible to find a touchpoint shared by both sides. Taking into account all this information, I identified five principles aimed at creating design for teenagers:

1. Treat your audience seriously;
2. Place eternal values over fashion;
3. Consider global trends;
4. Think about diversity of identities;
5. Emotions go hand in hand with logics. In this work I analyzed the principals of teenage communication that can be used to create new advertisements with healthier

## 4.4 Concept of the Territory Improvement of Shishkin Museum-estate

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Yelabuga is a historical and public spaces supported settlement of federal by historic buildings combined significance, included in the with the natural topography and List of Historical Settlements landscape. According to Russian List of Federal Significance, and experts, Yelabuga is one of the has not lost the integrity of 20 best preserved historical its historical urban planning cities in Russia. [Azamova, formation. It has largely retained 2012]. the historic planning structure



Figure 1. Historical panorama of the city of Yelabuga

The site is located near secondary roads on the sides, Pokrovskaya Street and trees and plants are planted. Embankment. Its area is 2861 m<sup>2</sup>. At the moment, in the Yelabuga Museum which is courtyard of the estate there is the estate owned by the painter is of global importance; it is a main road in the center and

the only house-museum of I.I. Shishkin and exhibits only authentic objects of decorative painting of the 19<sup>th</sup> century [Nikolay Shishkin, 2014].

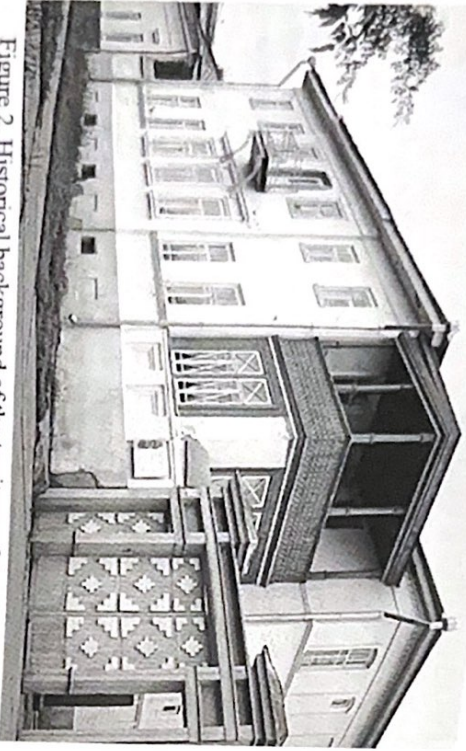


Figure 2. Historical background of the territory of the projected area

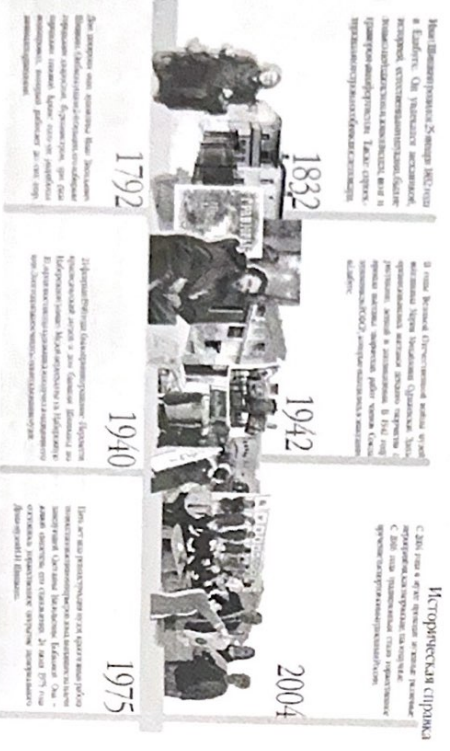


Figure 3. Historical background

The aim of the project is to enhance the functionality of the territory by organizing landscaping paths, which is a system of regular paths, by developing new functions and reflecting I.I. Shishkin's activities in the design of the courtyard area.

The project involves developing several functions of the territory: a recreation area, walls with

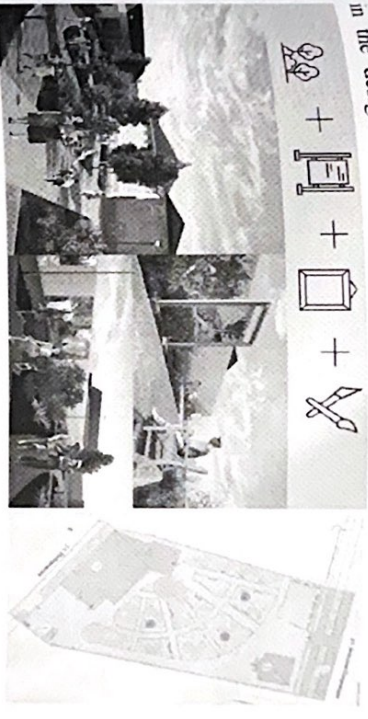


Figure 4. Views of the territory

engravings, and a place for plain art, since drawing lessons are currently held in the museum building and on its territory for art school students.

In addition, the improvement of the area includes the creation of a workshop in which master classes will be held in the creative areas that Shishkin was interested in.

The second stage of the project is building of the pavilion-workshop. It is a building with an area of 103 m<sup>2</sup>, which is divided into etching and art classes. For this purpose,

two rooms have been designed for holding master classes.

The facade is made of brick with the addition of stone, metal and wood. The historical elements of Yelabuga architecture are integrated into the image of the building. The interior is designed in wood and brick. The structural features of the building are a vaulted roof supported by columns and arches in the window and door area.

The concept reflects the identity of the place: regular paths support

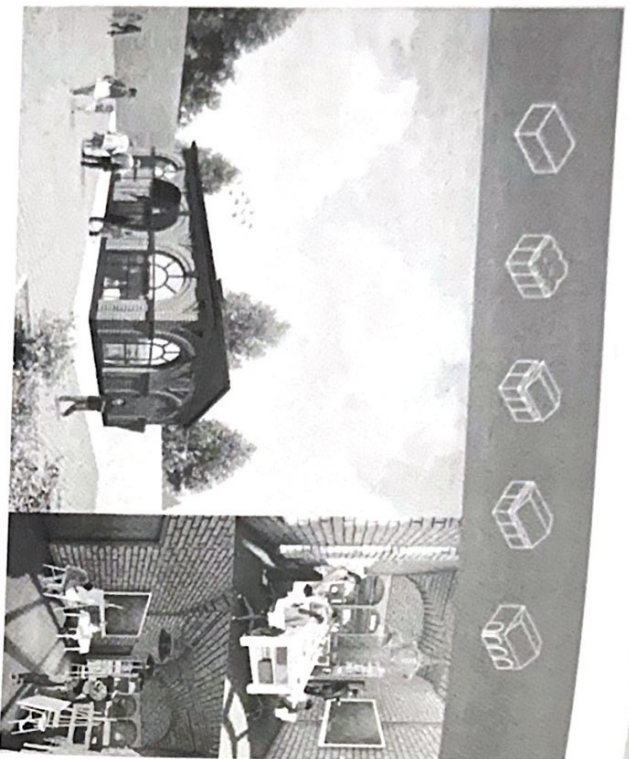


Figure 5. The concept of landscaping the territory of the quarter of the former weaving factory in the city of Yelabuga

the historical nature of the place, small architectural forms are developed based on the history of the place, the elements on the pavilion facade reflect typical Yelabuga architecture, such as arches made of brick with keystones.

The project considered the features of the formation of public spaces in the urban environment while preserving the historical component of the

area and determined their main characteristics.

[1] Agzannova K. (2012). Ria News: The city according to the drawing of Catherine II: the history of Kazanskaya street in Yelabuga. URL: <https://ria.ru/20120314/594141635.html>

[2] Nikolay Shishkin (2014). History of Elabuga from ancient times.

## 4.5 Exploring the Impact of Sustainability and the UN Sustainable Goals on Graphic Design

**M. Fedorina<sup>1</sup>**, Moscow State University (MSU), Department of

Philosophy

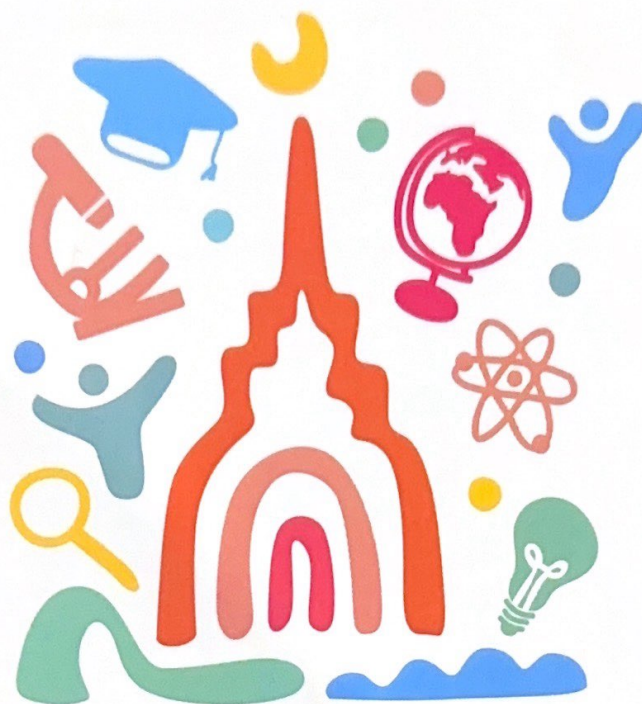
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The topic of sustainability has persisted as a dominant theme in societal discourse over the course of numerous decades. Its importance remains prevalent in the contemporary era, as evidenced by the urgent requirement for novel and effective solutions to the current global challenges currently confronted by humanity.

Art and Design have long remained at the forefront of not solely devising feasible resolutions to accomplish sustainable objectives, but also informing and educating the general public on the most crucial facets of the sustainable transformation. Graphic design, along with other artistic dimensions, is a discipline that has devoted

particular attention to aligning its methodologies with the principles of sustainability as a result of its widespread societal acknowledgement and pervasive impact on the lives of individuals.

The presented paper examines the relationship between graphic design and sustainability in contemporary society. It explores the tools, methodologies, and guidelines which fuel the sustainable reimagining of design practices, within the fields of graphics, communication, and branding. Furthermore, it assesses the existing principles of sustainable design by drawing upon the United Nations' Sustainable Development Goals.

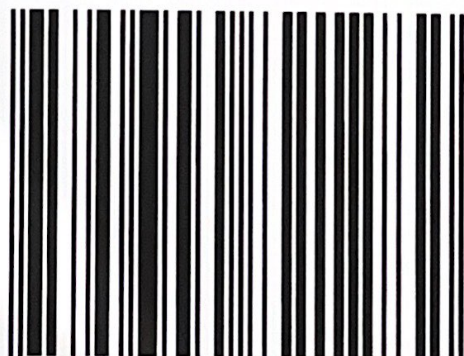


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