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Ningbo Innovation Center, Zhejiang University



Report on International Design Education Program

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List of Abbreviations

IDE	International Design Education
IP	Intellectual Property
ZJU-ISD	International School of Design, Ningbo Innovation Center, Zhejiang University
ISID	Inclusive and Sustainable Industrial Development
LDC5	The 5th United Nations Conference on the Least Developed Countries
LDCs	Least Developed Countries
MIIT	Ministry of Industry and Information Technology of the People's Republic of China
NGO	Non-Government Organization
PM	Permanent Mission
RC	Resident Coordinator
SDGs	Sustainable Development Goals
STI	Science, Technology and Innovation
OECD	Organisation for Economic Co-operation and Development
UN	United Nations
UN ECOSOC	United Nations Economic and Social Council
UNIDO	United Nations Industrial Development Organization
UNTB	United Nations Technology Bank for Least Developed Countries
USD	United States Dollar
WEDC	World Eco-Design Conference
ZJU	Zhejiang University



The 1st Cohort of (on campus) Students in IDE Program 2021, with school officials and advisers.

Summary

The International Design Education (IDE) Program was jointly organized by the United Nations Technology Bank for Least Developed Countries (UNTB), World Eco-Design Conference (WEDC) and International School of Design, Ningbo Innovation Center, Zhejiang University (ZJU-ISD) since 2021. The Program is dedicated to providing industrial design engineering education for students from least developed countries (LDCs) to enhance LDCs' capacity and competitiveness in industrial design.

Each year, the Program provides up to 50 full scholarships to eligible students from LDCs. These scholarships enable students to study industrial design and cultivate their problem-solving skills. The Program is designed to welcome students from diverse educational backgrounds for nurturing interdisciplinary designers. The Program also serves as an incubator to support student innovation and entrepreneurship by providing business support, research and services that help transform ideas in the classroom into start-ups in the market.

The Program received a total of 149 applications from 21 LDCs in 2021 and 2022. 68 students from 19 LDCs were accepted to the Program, the acceptance rate is 45.6%. The Program's modules are hosted by Ningbo Innovation Center, Zhejiang University, in English and it takes two and a half academic years to complete the Program. During the pandemic period, the Program also provides an online study option. Students fulfilling all the degree requirements will be awarded a Master's degree in Industrial Design Engineering from Zhejiang University.

The IDE students are actively involved in international conferences and exhibitions on industrial design as well as cultural events. One of the major highlights of the Program so far has been a student-led charity exhibition "Culture from afar", featuring digital arts that demonstrated the enriching cultural encounters students have experienced, using the designing tools they learnt in the Program. Launched in December 2021, the exhibition will also be showcased at the World Eco-Design Conference 2022 and the 5th United Nations Conference on the Least Developed Countries (LDC5).

The Program aims to enhance LDCs' industrial design talent pool and stimulate their knowledge economy. The Program also promotes technology transfer and cooperation between industry, universities and research institutes internationally. The long-term goal of the Program is to boost LDCs' capacities in science, technology and innovation that contribute to the achievement of the UN Sustainable Development Goals (SDGs) in the world's 46 LDCs.

1

Challenges Faced by LDCs to be Addressed

The 2030 Agenda for Sustainable Development, adopted by the United Nations General Assembly in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. Among the 17 SDGs, education, economy, environment and gender equality are central concerns on the Agenda. Worldwide, about 258 million children and young people are lacking access to schools¹. In 2020, the global GDP amounted to about USD 84.97 trillion². However, ecosystem degradation affects the well-being of 40% of the world's population³. There are 129 million girls out of school and only 49% of countries have achieved gender parity in primary education⁴. At the secondary level, the gap is wider as 42% of countries have achieved gender parity in lower secondary education, and 24% in upper secondary education⁵.

The situation in the LDC category is even less desirable. In total, more than one-in-three of all out-of-school children and adolescents are in LDCs. In 2020, the GDP of the LDC category amounted to about 1.11 trillion USD⁶ - only 1.3% of the global GDP while LDCs have 12% of the world population⁷. Moreover, LDCs are vulnerable to the negative impacts of climate change. Over the last 50 years, 69% of worldwide deaths caused by climate-related disasters were in LDCs⁸. In the aspect of gender inequality, 24.4% of men in LDCs have access to the internet, while only 13.9% of women have access⁹.

LDCs have achieved a lot in STI and ecological environmental protection, however, multiple challenges including the COVID-19 pandemic, climate change and poverty, continue to be the obstacles to LDCs' sustainable development. The economic, social and health impact of COVID-19 has reversed the gains of the LDCs, resulting in the worst growth performance in the last three decades. According to the World Bank national accounts data and OECD National Accounts data files¹⁰, the GDP growth of the LDC category prior to the pandemic in 2019 was 4.9%, in 2020, it shrunk to 0.6%. The COVID-19 pandemic has dramatically highlighted the institutional, economic and social shortcomings in the world's most vulnerable and least resilient economies that were impacted the hardest. LDCs still face structural challenges, such as weak productive capacities, limited economic bases, underdevelopment, and multiple vulnerabilities.

¹UNESCO, "Out-of-School Children and Youth": <http://uis.unesco.org/en/topic/out-school-children-and-youth>

²Statista, "Global gross domestic product (GDP) at current prices from 1985 to 2027": <https://www.statista.com/statistics/268750/global-gross-domestic-product-gdp/#~:text=In%202020%2C%20global%20GDP%20amounted,trillion%20lower%20than%20in%202019>

³UNEP, "UN calls on countries to meet commitments to restore one billion hectares of land": <https://www.unep.org/news-and-stories/press-release/un-calls-countries-meet-commitments-restore-one-billion-hectares#:~:text=%E2%80%9CDegradation%20is%20already%20affecting%20the,us%E2%80%9D%20by%20reversing%20these%20trends>

⁴World Bank, "GDP (current US\$) – Least developed countries": https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?locations=XL&most_recent_value_desc=true

⁵UNICEF, "Girls' Education": <https://www.unicef.org/education/girls-education>

⁶World Bank, "GDP (current US\$) – Least developed countries": https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?locations=XL&most_recent_value_desc=true

⁷UNCTAD, "UN recognition of the least developed countries": <https://unctad.org/topic/least-developed-countries/recognition#:~:text=Currently%2C%20the%2046%20LDCs%20comprise,1%20percent%20of%20world%20trade>

⁸Reliefweb, "2020 in review: climate impacts in the least developed countries": <https://reliefweb.int/report/world/2020-review-climate-impacts-least-developed-countries>

⁹Devex, "Opinion: How to tackle least developed countries' gender gaps in tech use and data": <https://www.devex.com/news/opinion-how-to-tackle-least-developed-countries-gender-gaps-in-tech-use-and-data-96713>

¹⁰World Bank, "GDP growth (annual%) – Least developed countries": <https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?end=2021&locations=XL&start=1981>

2

China's Development Actions for LDCs

China is actively engaged in actions to support the LDCs. For instance, China has been contributing through the UN South-South Cooperation (SSC) Programme since its launch in 1996. China's development actions aim to connect the developing countries, including LDCs through international collaboration and sharing knowledge, technologies, skills and successful initiatives.

China aims to share its lessons learned in development to help LDCs leapfrog development challenges. In 2016, the Ministry of Education of China affirmed that the opening-up of China's education shall be accelerated. The education sector should aim to play a significant role in the South-South Cooperation Programme to support developing countries, particularly the LDCs.

As one of China's top 3 universities, Zhejiang University is aligned with China's development policy and supports the educational development of the LDCs by providing scholarships for industrial design engineering for students from LDCs through IDE Program on its campus in Ningbo.

3

The Origin of the Program

With the support of the UNIDO, Ministry of Industry and Information Technology of the People's Republic of China (MIIT), People's Government of Guangdong Province, and China Light Industry Federation, the World Eco-Design Conference (WEDC) was founded in 2018. Initially, WEDC was joined by design organizations, universities, institutions and enterprises from more than 30 countries. In December 2021, WEDC was granted Special Consultative Status by the UN ECOSOC.

The UNTB is a subsidiary organ of the General Assembly, a global organization dedicated to enhancing the contribution of science, technology and innovation for sustainable development in the world's 46 least developed countries. In December 2019, the former Managing Director of UNTB was invited to participate in the second WEDC. In June 2020, the WEDC and UNTB established a strategic cooperation partnership. In November 2020, the two parties signed a Letter of Intent. In March 2021, the International School of Design, Ningbo Innovation Center, Zhejiang University (ZJU-ISD) joined in the partnership by signing an agreement to launch the IDE Program. ZJU is ranked among China's leading universities for both the quantity and quality of its degree programs. Ningbo Innovation Center, Zhejiang University was built with strong support from Ningbo Municipal People's Government on 1 August, 2018.

THE PROGRAM DESIGN

The Program is designed for students from the LDCs who have completed a Bachelor's degree. Moreover, the Program is designed to welcome students from diverse educational backgrounds for nurturing interdisciplinary designers. The module contains both theoretical knowledge and practicum. The Program also supports online study through a well-developed e-learning platform for students who have been studying online due to the travel restrictions during the pandemic. For students on campus, the Program also prepares extracurricular activities, such as field visits to leading enterprises to support the learning.

1 Objectives

The objectives of the IDE Program are:

a. To strengthen the capacity of young generations from LDCs through education in ecological industrial design, problem solving, innovation and entrepreneurship, and focus on the commercialization of research achievements and creation of knowledge economies;

b. To provide technology solutions and capacity building, expand the design talent pool and technology repository, and enhance the capacity and competitiveness on STI for the LDCs to achieve the SDGs;

c. To promote exchange and cooperation among countries and regions in the area of eco-design, strengthen global partnership and cooperation, and jointly establish a community with a shared future for global development.

2 Expected Outputs

a. Academic outputs:

(i) Publish journal papers in core journals like the Science Citation Index (SCI), the Engineering Index (EI), and the Chinese Science Citation Database (CSCD) etc.;

(ii) Assist youth entrepreneurs to commercialize innovation with appearance patents, utility model patents and software copyrights;

b. Capacity building:

(i) Support LDCs to integrate industrial design in education, economy and ecology sectors;

c. Partnership:

(i) Develop tertiary partnerships on industrial design education, innovation and entrepreneurship.

3 Program Timeline

The Program is effective from February 2021 to February 2027. Since 2021, the IDE Program has launched an admission campaign opening for applications every February to March. The admission result is announced in July or August every year, and the academic year commences in September. The Program cooperation parties will continue to trace and publicize the activities of the Program, demonstrate the learning achievements, and assist in the commercialization of the ideas. In addition, the three cooperation parties propose to have an annual meeting every September to brief and analyze the Program with a progress report and academic achievements, in order to further the Program.

The academic duration of the Program is 2.5 years. The first semester is from early September to mid-January of next year, the second semester is from mid-February to June. Winter break is from mid-January to mid-February and summer break is from July to August.

4

Stakeholders

LDCs are the primary beneficiaries of the Program. The Program aims to enhance their industrial design talent pool and stimulate their knowledge economy. The Program nourishes design talents and technology transfer, develops industry-university-research cooperation partnerships internationally, and promotes exchange and integration between industry, universities and research institutions. It also establishes a cooperation mechanism by jointly constructing a global sharing and exchange platform, inviting colleges and universities of the LDCs to join the Program to jointly create a community for cultural inclusion, knowledge sharing, and economic integration;

Other stakeholder groups:

China: China's academic institutes, governmental departments, e.g., the Ministry of Education, and other universities provide scholarships and educational resources to elevate the reputation of Chinese design education; Similarly, several Chinese universities and vocational institutes have also expressed their interest in partnering with the IDE Program and are committed to offering scholarships for LDC students and providing vocational, undergraduate, postgraduate and doctoral courses to fit the needs of students at different educational levels.

International Ecology Industry: Cultivate a technology generation, promote technology transfer, achieve mutual benefit and sustainable development, as well as promote sustainable development.

Sustainable Industrial Designers from LDCs: Create jobs, commit to eradicating poverty and serve their home countries.

5

Linkages with the SDGs

The IDE Program contributes to:



“Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all”



“Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all”



“Infrastructure, Inclusive Sustainable Industries and Innovation”



“Ensure sustainable consumption and production patterns”



“Strengthen the means of implementation and revitalize the global partnership for sustainable development”

6

Gender Mainstreaming Strategy

The Program recognizes that gender equality and the empowerment of women have a significant positive impact on sustained economic growth and inclusive industrial development, and it is also a key driver of poverty alleviation and social progress. Therefore, in order to ensure equal access and participation of women and men in the Program, the Program will continue to integrate the best practices of gender mainstreaming into its main activities. The Program will promote gender balance in academic and publishing opportunities.

In addition, the industrial design engineering master course in the Program framework serves as a platform for women experts to serve as trainers and develop their experience and expertise in green industries to further empower women and promote Inclusive and Sustainable Industrial Development (ISID). The guiding principle of the Program is to ensure that women and men have equal access to participate in, and benefit from the Program.

Finally, by systematically mainstreaming gender into Program activities, UNTB and WEDC will ensure equal opportunities for women and men, thereby advancing the ISID agenda.

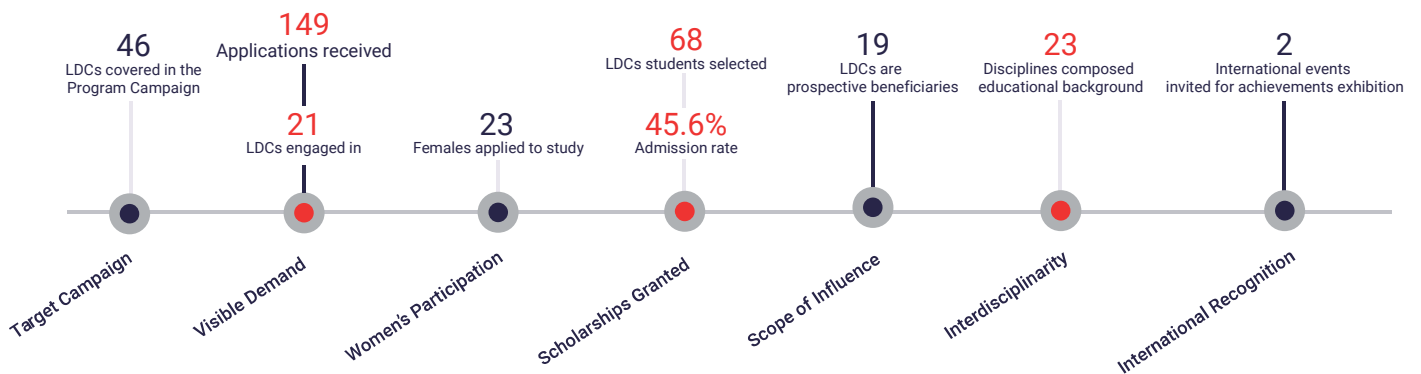


THE PROGRAM ACHIEVEMENTS

1 Enrollment

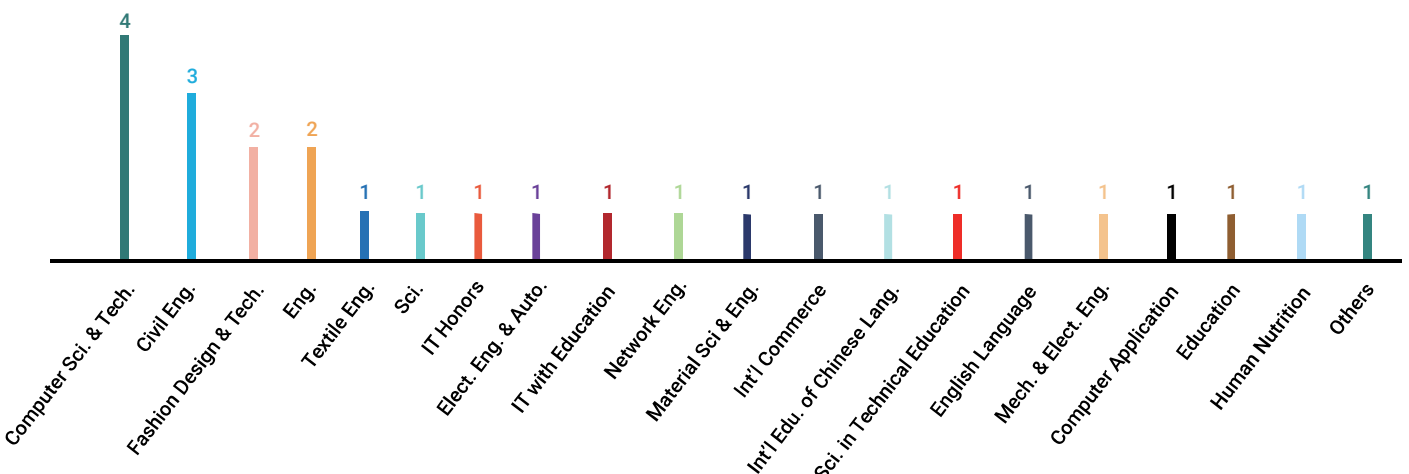
The IDE Program in 2021 and 2022 received a total of 149 applications from 21 LDCs. They are from Afghanistan (22), Yemen (21), Bangladesh (20), Ethiopia (16), Zambia (14), Guinea (9), Somalia (9), Comoros (7), Lesotho (6), Burundi (3), Cambodia (3), Timor-Leste (3), Rwanda (3), Uganda (3), Madagascar (2), Nepal (2), Tanzania (2), the Democratic Republic of the Congo (1), Mali (1), Sierra Leone (1) and Sudan (1). 23 of the applicants are female, the ratio is approximately 15.4%. The main age groups are those born in the 1980s, 1990s and 2000s.

The total amount of admitted students is 68 from 19 LDCs, representing an admission rate of 45.6%. The admitted students are from the following LDCs, Yemen (13), Bangladesh (10), Zambia (8), Afghanistan (5), Ethiopia (5), Burundi (3), Guinea (3), Lesotho (3), Somalia (3) Cambodia (2), Comoros (2), Rwanda (2), Tanzania (2), Uganda (2), the Democratic Republic of the Congo (1), Madagascar (1), Mali (1), Nepal (1) and Timor-Leste (1).



2 Diverse Backgrounds

There are 32 IDE students in the first cohort, 23 of them study online while the other 9 study on campus. The educational background and distribution of these students are indicated below:



3

Student Activities

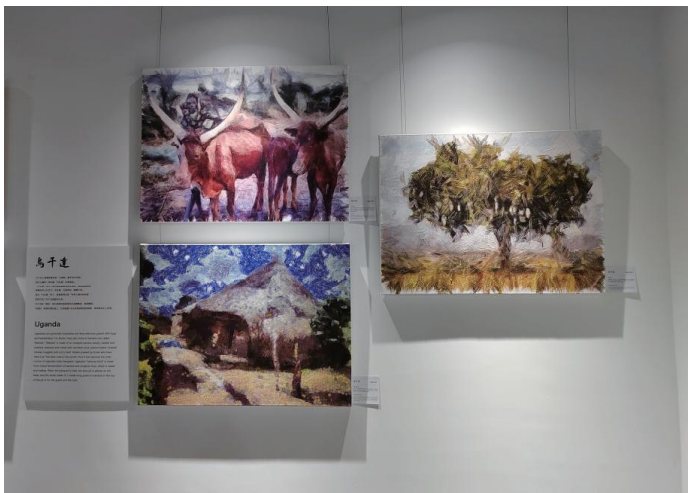
Student-led Charity Exhibition

In December 2021, the ZJU-ISD launched the “Culture from afar-Charity Digital Arts Exhibition”, exhibiting the works of the IDE students.

These works have been inspired by the national history and cultural traditions of students’ homes and integrated the understanding of the internal relationship between cultural semiotics,

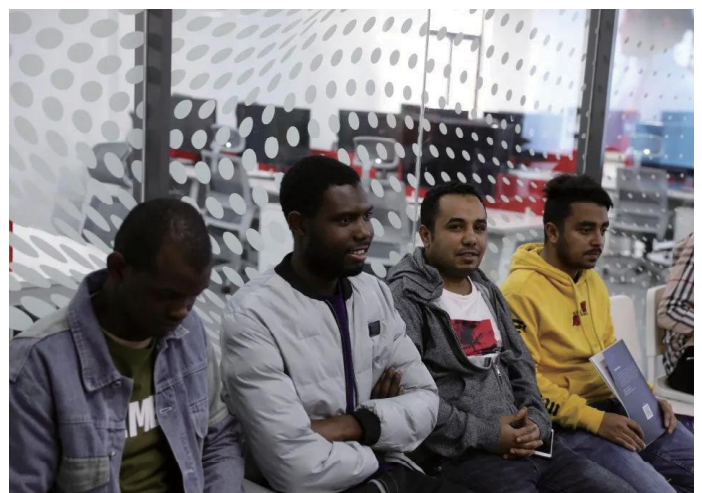
representations and connotation from the other cultural traditions. The cultures are presented from a modern design perspective, using reconstruction by applying AI style transfer technology. The cultures of 18 countries were demonstrated by the usage of digital design tools artistically. The ongoing exhibition continues to showcase the works of IDE students. The revenue generated will be donated to charity. During the 5th UN Conference on the Least Developed Countries (LDC5) scheduled on 5-9 March 2023, the IDE Program will also be featured in the exhibition. Some of the highlights in the Exhibition are featured in the photos below:





Participation in the 2022 International Symposium on Design Education and Industry Innovation

On 11 March 2022, the International Symposium on Design Education and Industry Innovation of 2022 was held successfully in ZJU-ISD. The International Symposium was co-hosted by ZJU-ISD, the University of Nottingham Ningbo China, and Eindhoven University of Technology, the Netherlands. The Symposium focused on fields of cross-culture, human and intelligent systems, smart education and eco-design. The International Symposium invited interdisciplinary experts and young scholars to exchange ideas on the future development of design education and industry innovation. IDE students were invited to the Symposium and contributed greatly to the discussions with their expertise and experiences by opening informative dialogues with professors and industry leaders as well as raising questions and constructive feedback in light of their diverse educational and cultural backgrounds.



Submitting Research Papers on Digital Arts and Health in the Workshop at IFIP-ICEC 2022



The 21st International Federation for Information Processing-International Conference on Entertainment Computing (IFIP-ICEC 2022), the longest lasting and prime scientific conference series in the area of Entertainment Computing will be held in Bremen, Germany on 1-3 November, 2022. The conference is organized by the Entertainment Computing Technical Committee and hosted by the Bremer Institut für Produktion und Logistik (BIBA), in association with the University of Bremen.

Several IDE students submitted a full research paper in the domain of “digital arts and health” for peer-review to be presented in the thematic workshop during the Conference. The workshop “Digital Arts and Health” is co-hosted by the ZJU-ISD, Department of Industrial Design of Eindhoven University of Technology and School of Software Technology, ZJU.

Students’ Designs Showcasing in Lighting Design Exhibition



To celebrate the 550th anniversary of Wang Yangming, the Faculty of Science and Engineering of the University of Nottingham Ningbo China and ZJU-ISD joined hands to organize an exhibition of lighting design which integrates art and technology.

IDE students Malambo Lushomo and Masulani Bokola joined the 12-week course to connect theory and practice using field surveys and research on the connotation of the Yangming Culture. The final lighting designs are innovated in 4 dimensions: functional structure, aesthetics, interactive features and technology integration. Malambo Lushomo’s design has been selected as a permanent display in the Duanyun Building, the birthplace of Wang Yangming, to commemorate this cooperation. “I have learnt in-depth about the charm of Yangming Culture through my studies. The idea of the 3D mountable night light that I designed, comes from the inspiration of the wish of Yangming’s grandmother made before Yangming was born - Welcome him to the world in the cloud.” Malambo Lushomo shared.



Participation in Chinese Cultural Activity

On 1 June 2022, the international students of ZJU-ISD including all IDE students, were invited by the Government of Yunlong Town, Ningbo, to “Our Festival · Watch Yunlong at Dragon Boat Festival”. International students teamed up to experience traditional dragon boat racing.

An IDE student, Diallo Abdoul Salam from Guinea, shared in the interview, that during the dragon boat ride, he learnt that when everyone has the same goal, it will be much easier to reach - the spirit of the dragon boat is about teamwork. “No matter how good you are at rowing, if you did not row at the same pace, the collective speed would remain slow.” Another IDE student, Md Sezadur Rahman from Bangladesh highlighted “Dragon symbolizes boldness, rowing a dragon boat means to keep pressing forward”.



Students Won Prizes at Mandarin Speech Contest



The 1st Mandarin Speech Contest for International Students of Higher Education Institutes in Ningbo kicked off on 11 November 2021. 2 IDE students Kadafi Said Youssouf from Comoros and Diallo Abdoul Salam from Guinea won the 2nd prize and the 3rd prize respectively, under the guidance of Ms. Lv Hui and Ms. Wang Huan. The Contest was jointly organized by the Ningbo Education Bureau and the Foreign Affairs Office of the People’s Government of Ningbo Municipality and aims to bridge cultural understanding and international cooperation, the shared vision with the IDE Program.



ROLES & RESPONSIBILITIES

UNTB

The UNTB provides technical consultation to the WEDC, coordinates with other UN agencies, Resident Coordinator Offices, relevant governmental institutes, permanent missions and universities of the LDCs to assist in program promotion, and assigns senior representatives of the UNTB to participate in relevant activities of the Program.

ZJU-ISD

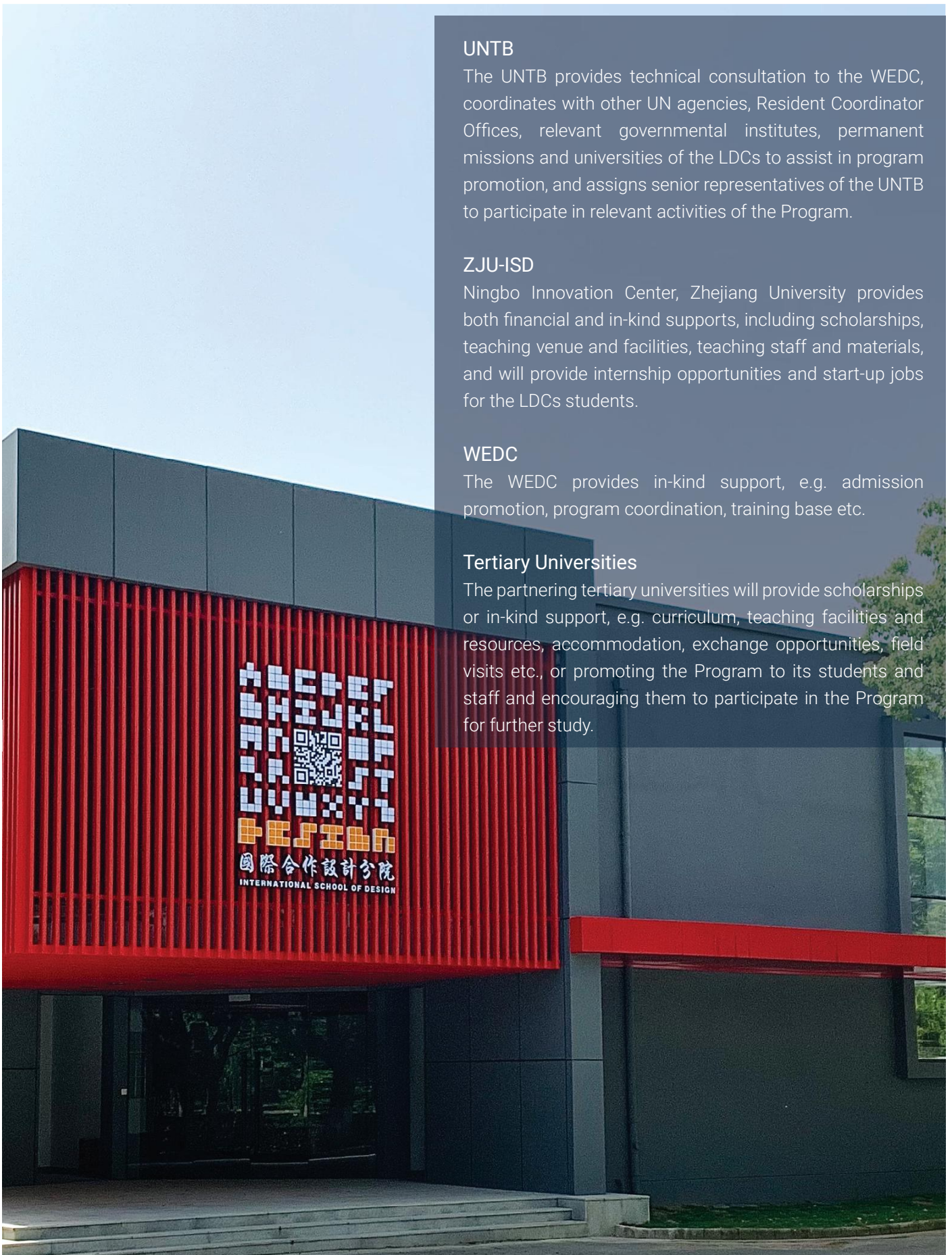
Ningbo Innovation Center, Zhejiang University provides both financial and in-kind supports, including scholarships, teaching venue and facilities, teaching staff and materials, and will provide internship opportunities and start-up jobs for the LDCs students.

WEDC

The WEDC provides in-kind support, e.g. admission promotion, program coordination, training base etc.

Tertiary Universities

The partnering tertiary universities will provide scholarships or in-kind support, e.g. curriculum, teaching facilities and resources, accommodation, exchange opportunities, field visits etc., or promoting the Program to its students and staff and encouraging them to participate in the Program for further study.



BUDGET

The UNTB and WEDC provide in-kind contributions. The Program is funded by Ningbo Innovation Center, Zhejiang University, including the budget of USD \$1,940,000 for campus construction, USD \$900,000/year for annual operation, and USD \$750,000/year for scholarships, the total amount of budget for the first year of the Program is USD \$3,590,000.


MONITORING, REPORTING & EVALUATION

The Program will be subject to the standard UNTB, WEDC and Ningbo Innovation Center, Zhejiang University monitoring and evaluation procedures. The UNTB Managing Director and the WEDC President will monitor the Program activities on a continuous basis in order to ensure that activities are carried out according to the plan and remedial steps are taken as necessary. An annual report of the Program will be provided to the stakeholders.

About the UN Technology Bank

The UN Technology Bank is a new global organization, dedicated to enhancing the contribution of science, technology and innovation for sustainable development in the world's 46 least developed countries. Least developed countries are low-income countries confronting severe structural impediments to sustainable development. They are highly vulnerable to economic and environmental shocks and have low levels of human assets.

The UN Technology Bank supports national and regional technological efforts in least developed countries, reinforcing partnerships across sectors and helping nations identify and use appropriate technologies to transform their economies and improve livelihoods.


 : www.un.org/technologybank



About the ZJU-ISD

Zhejiang University (ZJU) ranks among the top 3 on Chinese mainland and the top 50 in the QS World University Rankings. It is also one of the oldest Chinese universities, its roots can be traced back to 1897. It has 7 faculties and 39 schools, partnering with more than 200 institutions from more than 30 countries worldwide.

Ningbo Innovation Center, Zhejiang University was built with strong support from Ningbo Municipal People's Government in 2018, focusing on scientific research, achievements transformation and postgraduate education. ZJU-ISD is an international school of the Center specializing in innovation driven design, featuring scientific research, internationalization and interdisciplinarity by relying on ZJU's high-quality educational resources.

 : www.zju.edu.cn/, <http://nb.zju.edu.cn/>, <http://isd.zju.edu.cn/>




About the WEDC

The World Eco-Design Conference (WEDC) is an industrial, academic and world-wide non-governmental organization voluntarily formed by enterprises, institutions, social organizations and workers all over the world who are committed to promoting sustainable development.

WEDC aims to promote the integration and sustainable development of design, ecology and society on a global scale, strengthen exchanges and cooperation on ecological design among countries and regions, forge a new models of low-carbon city, build an innovative ecosystem for eco-design, and make further contributions to achieve the Sustainable Development Goals of the UN 2030 Agenda.

World Eco-Design Conference has United Nations Special Consultative Status.

 : www.wedo2018.com.cn/

