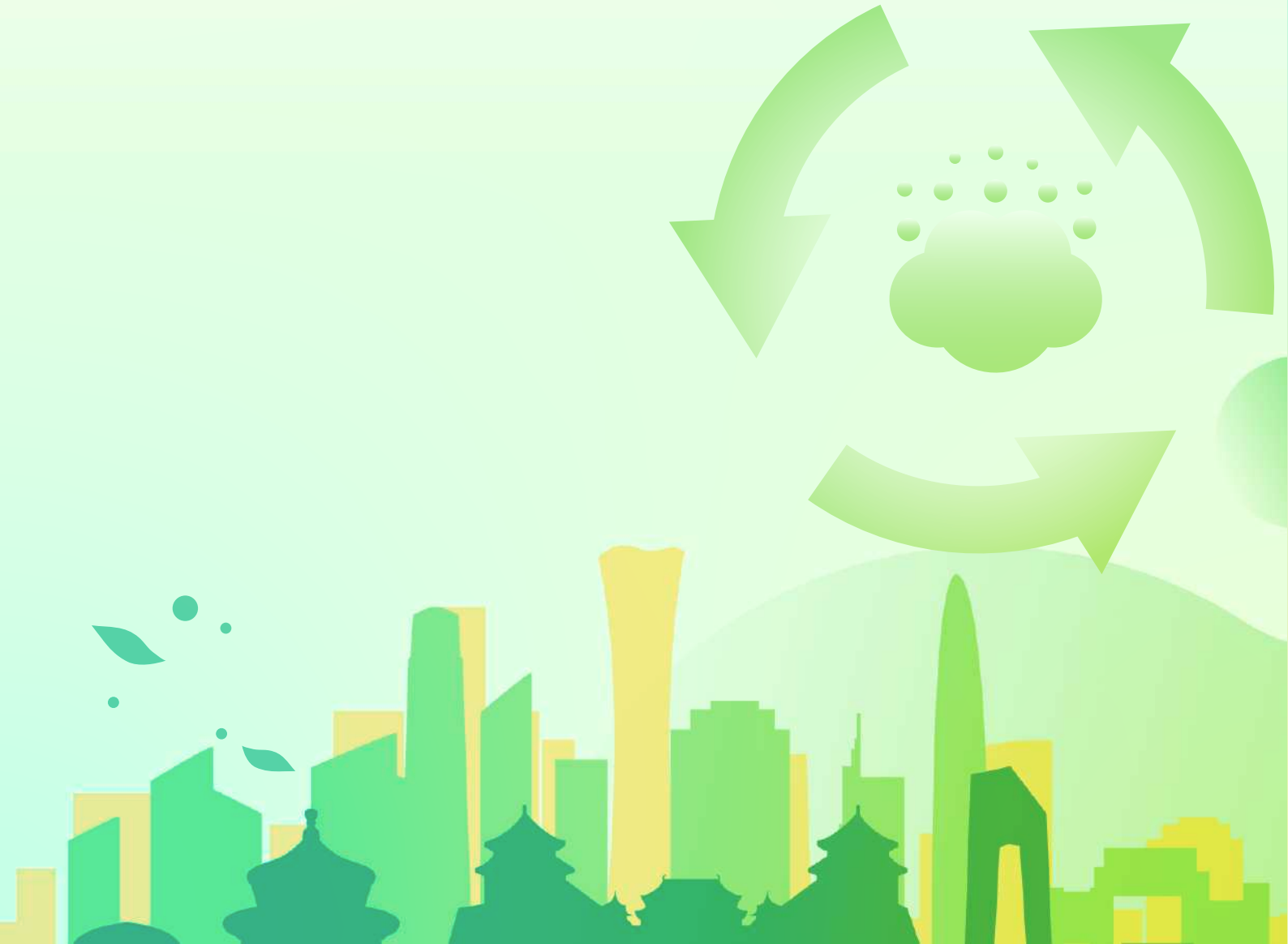
天津大学
Tianjin University

OFFICE OF
INTERNATIONAL
COOPERATION

2022 TJU Online Summer School

Achieving Carbon Neutrality with Technology



INTRODUCTION

To promote the application of science and technology (S&T) to achieving carbon neutrality and to cultivate global citizens with deep knowledge and a sense of responsibility, Tianjin University will hold the 2022 TJU Online Summer School from August 22 to September 1. The theme will be "Achieving Carbon Neutrality with Technology". The program offers 6 modules, introducing the latest developments in carbon neutrality by first-rate professors and researchers.

As the pandemic currently hampers physical mobility, this online program will provide students access to expertise from a variety of fields, the opportunity to interact with experts and international students from around the world, and the chance to experience TJU's academic atmosphere without having to travel.

We welcome you to join us!

Target Students

- Very interested in carbon neutrality and related areas
- Full-time students from TJU overseas partners and TJU
- Good command of English listening and speaking

Organizer

Office of International Cooperation
http://ico.tju.edu.cn/en/

Co-organizers

School of Mechanical Engineering
http://me.tju.edu.cn/enindex.jsp

School of Chemical Engineering and Technology
http://chemeng.tju.edu.cn/en/

School of Materials Science and Engineering
http://mse.tju.edu.cn/English/Home.htm

School of Architecture
http://t-arch.tju.edu.cn/

School of Environmental Science & Engineering
http://tjusee.tju.edu.cn/

School of International Education
http://sie.tju.edu.cn/en/

SCHEDULE

Opening Ceremony

August 22 15:00-17:00

Module 1: Internal Combustion Engine

August 23 15:00-16:30 The evolution of internal combustion engine towards carbon neutrality
17:00-18:30 High-efficiency application of methanol on engines

Module 2: Chemical Engineering for Sustainable Development

August 24 15:00-15:30 Membrane science and technology
15:30-16:00 CO_2-to-treasure through "Power-to-X": Electrocatalytic conversion of CO_2 to valuable chemicals
17:00-17:30 The role of chemical engineers in H_2 energy
17:30-18:00 Photocatalytic hydrogen evolution and CO_2 reduction based on transition metal sulfides

Module 3: Energy Storage and Conversion Materials

August 25 15:00-16:30 Lithium-organic batteries
17:00-18:30 Design and synthesis of new energy materials and their applications
August 26 15:00-16:30 Advanced electrocatalysts for oxygen reduction
17:00-18:30 Aqueous zinc-based battery

Module 4: Architectural Design and Technologies for a Carbon-Neutral Built Environment

August 29 15:00-16:30 R-CELLS: A solar house prototype developed by Team Tianjin U+
17:00-18:30 Design and evaluation of solar technology integration for zero carbon buildings
August 30 15:00-16:30 Goal- and effect-oriented low carbon building design methods
17:00-18:30 How to achieve low carbon at the early design stage: Green retrofit decision making for integrated performance optimization

Module 5: Analysis of Industrial Emissions and Building Carbon Neutrality

August 31 15:00-16:30 Industrial pollutants emissions based on the input-output model: Linkage analysis
17:00-18:30 Carbon-neutral building

Module 6: Chinese Culture

September 1 15:00-15:40 Festival customs
16:00-16:40 Chinese languages and characters

Closing

September 1 17:00-18:00

* UTC/GMT+8 Time

HIGHLIGHTS

First-rate professors and researchers from TJU, a top engineering university, will provide expert insight into how the application of technologies in various disciplines and industries can accelerate the realization of carbon neutrality.

Module 1: The Internal Combustion Engine

The theories, applications and latest developments in internal combustion engines. Advanced combustion and related topics will also be discussed.

Assoc. Prof. Yue Zongyu

Committee member of SAE, ASME and ILAS

Research Areas: Multiphase reacting flow; Internal combustion engine; High fidelity simulation

Prof. Liu Haifeng

Principal Investigator at the State Key Laboratory of Engines(TJU)

Research Areas: Advanced combustion theory and technology in I.C. engines; Biofuels combustion; Optical diagnostics on combustion

Module 2: Chemical Engineering for Sustainable Development

Novel chemical engineering technologies for CO_2 emission reduction and conversion, new energy exploration and utilization will be demonstrated.

Prof. Wu Hong

Highly cited chinese researchers,Elsevier, 2021

Research Areas: Membrane and membrane processes

Prof. Zhang Peng

Associate editor of Chinese Chemical Letters

Research Areas: Catalysis; Electrocatalysis; Photoelectrochemical cell; CO_2 reduction; Water splitting

Prof. Wang Yuxin

The first-class award in basic research, CIESC, 2019

Research Areas: PEM fuel cells; Electrolytic hydrogen production; Desalination

Assoc. Prof. Yu Tao

Peiyang Scholar of Tianjin University

Research Areas: Design of semiconductor materials for environmental protection; Photocataytic water spliting to produce hydrogen; Photocatalytic carbon dioxide reduction

Module 3: Energy Storage and Conversion Materials

Latest developments in materials and devices for fuel cells, water splitting, hydrogen production and advanced batteries.

Prof. Xu Yunhua

Fellow of the Royal Society of Chemistry

Research Areas: Energy storage materials; Electrolytes; Batteries

Assoc. Researcher Yin Pengfei

Author and co-author of 28 SCI papers

Research Areas: Energy materials; new materials; material design and synthesis

Prof. Liang Ji

Doctoral supervisor

Research Areas: Electrocatalysts; Carbon materials; Electrochemical energy storage

Prof. Zhong Cheng

National Natural Science Foundation for Distinguished Young Scholar

Research Areas: Energy materials; Battery; Energy storage

Module 4: Architectural Design and Technology for a Carbon-Neutral Built Environment

Recent research and practice at the TJU School of Architecture (SOA), including low-carbon solar building design, optimization of a building's physical environment and life cycle impacts, and planning for multiple renewable energies.

Prof. Yang Wei

Leader of the Research Group of Carbon Neutral Building Design, Construction and Operation

Research Areas: Building life cycle assessment and design; Sustainable renewal of building stock; Buildings' design, construction and operation for carbon neutrality

Prof. Zhu Li

President of APEC Sustainable Energy Center

Research Areas: Low-carbon urban energy planning; Low-carbon building design and technology integration; New building skin design and interior environment

Prof. Liu Gang

Deputy Director of International Low-Carbon Building Research Center (TJU)

Research Areas: Green intelligent building; Ecological Smart Lighting

Lecturer Yang Hongwei

National Natural Science Foundation for Distinguished Young Scholar

Research Areas: Performance-based design of green renovation of existing buildings based on optimization algorithms

Module 5: Analysis of Industrial Emissions and Building Carbon Neutrality

A look into emissions resulting from the product exchange process and how to quickly achieve major emission reduction during the building phase in order to realize the goal of carbon neutrality.

Prof. Wang Yuan

Doctoral supervisor

Research Areas: Environmental economics

Assoc. Prof. Zhao Jing

Award winner of 2 ministerial and provincial-level science and technology awards

Research Areas: Intelligent control technology of building energy system; Building low-carbon heating and cooling technology; Building energy system digitization

Module 6: Chinese Culture

An exploration of traditional Chinese festival customs and the Chinese writing system. Students will "experience" Chinese languages and traditional festivals, through which they will better understand why China is a multi-ethnic, multicultural and multilingual country.

Lecturer Yin Xiaojing

Author of 4 textbooks for teaching Chinese as a foreign language and 1 cultural textbook

Research Areas: Chinese language teaching to overseas students; Chinese culture study

IMPORTANT INFORMATION

Application

Submit your application form at https://www.wjx.top/vm/Pk2x6r6.aspx, or scan the QR code to submit.

Application deadline

August 10

Language

English

Venue

Voov Meeting (meeting ID and password will be sent via email)

Cost

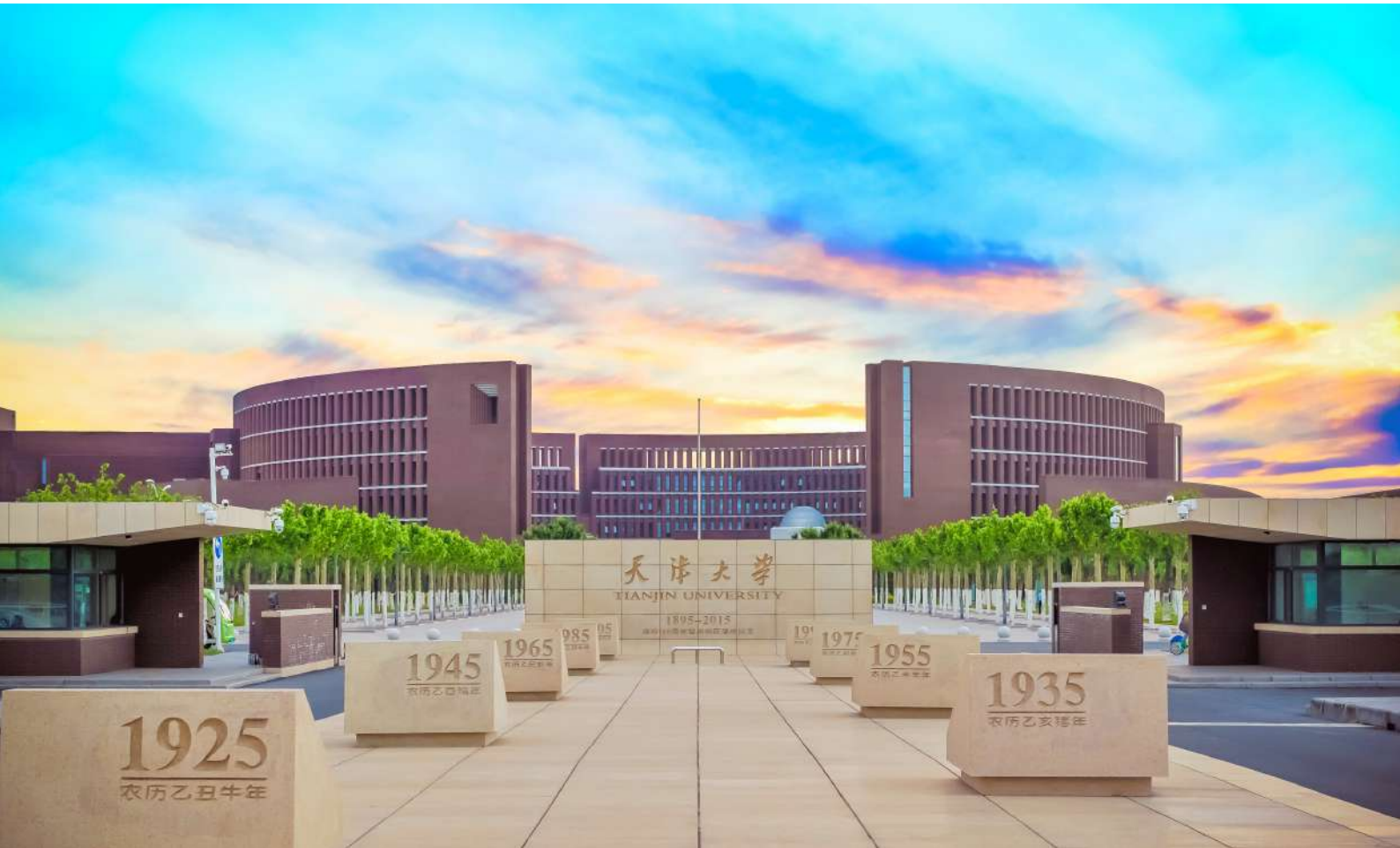
Free to students from TJU partners

Contact Information

For any inquiries, please contact

Ms. HE Shengnan, Office of International Cooperation, Tianjin University

Email: acnet_engtech@tju.edu.cn



OVERVIEW OF TIANJIN UNIVERSITY

Tianjin University (TJU) is the first modern university in China, founded on October 2, 1895, and possessing a distinct strength in engineering. Since its inception, the university has been an academic leader in research and education, living up to its motto of "Seeking Truth from Facts". TJU is equipped with experienced faculty and has distinctive disciplinary features. It is committed to constantly improving its quality of education and level of scientific research in an effort to build itself as a world-class university. The latest ESI shows that 3 disciplines rank in the world's top 1‰. TJU has graduated over 60 academicians of the Chinese Academy of Sciences (CAS) and Chinese Academy of Engineering (CAE), and over 50 university presidents around the world.

Global engagement stands at the forefront of TJU's agenda. Strategic partnerships have been forged with 257 universities, research institutes and multinational companies in 50 countries and regions. The joint school with the Georgia Institute of Technology and joint education programs with the National University of Singapore are highly illustrative. TJU initiated the ASEAN-China Network for Cooperation and Exchanges among Engineering and Technology Universities (ACNET-EngTech), a consortium comprised of 10 top universities from China and 14 from ASEAN countries. In the realm of international cooperation, student mobility has been greatly emphasized, with over 120 programs covering exchange, articulation, internships, and co-supervision at the undergraduate and postgraduate levels.

The university offers 81 degree programs and 506 courses taught in English, with 11 programs accredited by organizations such as IChemE, CTI, UIA and AMBA. 235 foreign experts have joined TJU's faculty over the years, including five recipients of the Chinese Government Friendship Award and one Nobel Prize winner. Hosting its first batch of international students in the 1920s, TJU, home to more than 20,000 international students from over 140 countries/regions has been among the most popular study destinations in China.