

哈爾濱工程大學  
HARBIN ENGINEERING UNIVERSITY

# SUMMER SCHOOL HEU VISION



2026

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# >> INTRODUCTION > >>

"HEU Vision" Summer School offers an immersive journey into the world of knowledge, cutting-edge innovations, and inspiring connections in science and technology. Our courses focus on frontier fields such as power systems, artificial intelligence, advanced materials, and nuclear energy, applying an innovative framework to push beyond the boundaries of traditional engineering.

Beyond high-quality academic content, we will immerse you in Chinese culture through guided excursions, site visits, and interactive workshops—all designed to help you explore vibrant cities, experience local customs, and appreciate the enduring charm of tradition.

"HEU Vision" Summer School invites young talents from around the globe to join us in expanding horizons toward a broader, brighter, and more sustainable future.

# >> ELIGIBILITY > >>

Aged 18 - 28 (inclusive) with good health.

Currently enrolled in college or university.

English proficiency required for non-native speakers.

# OUR PROGRAMS

## SUMMER SCHOOL OF INTELLIGENT ENGINEERING

This course focuses on the Unitree GO2 quadruped robot, providing in-depth instruction on its hardware architecture, communication protocols, control interfaces, and official SDK.

Through a blended "theory + hands-on" approach, students develop core competencies in low-level control and high-level application development for quadruped robots, with emphasis on AI-powered intelligent control technologies.

Participants will gain proficiency in configuring Ubuntu/Linux development environments, mastering UDP command formats and 500Hz control loops, and implementing motion control, state monitoring, and mode switching using C++ with the official SDK. They will also acquire the skills to integrate AI-enhanced functionalities—such as algorithm-optimized custom gaits, sensor-driven intelligent decision-making, and keyboard-based remote operation—while exploring the robot's practical applications in AI research, education, and industrial inspection.



# AGENDA

 **LOCATION: Harbin, China**

 **DATE: June - July, 2026 | 2 Weeks | To be announced**

 **Enrollment Capacity : 15-30 participants**

WEEK 1	MONDAY	<b>Introduction to GO2 &amp; C++ Development Environment Setup</b> <ol style="list-style-type: none"> <li>1.Install Ubuntu 22.04 and CMake</li> <li>2.Obtain the official GO2 SDK</li> <li>3.Run the sample programs</li> <li>4.Configure the PC IP address and perform a ping test on GO2</li> </ol>
	TUESDAY	<b>UDP Communication Principles &amp; Port Configuration</b> <ol style="list-style-type: none"> <li>1.Explanation of UDP/TCP protocols</li> <li>2.GO2 control ports: 8080 and 8081</li> <li>3.Create UDP send/receive functions using socket</li> </ol>
	WENDESDAY	<b>Parsing the HighCmd Control Command Structure</b> <ol style="list-style-type: none"> <li>1.Detailed explanation of each field</li> <li>2.Construct binary commands using C++</li> <li>3.Send the "stand" command</li> </ol>
	THURSDAY	<b>Parsing the HighState Feedback Data Structure</b> <ol style="list-style-type: none"> <li>1.Field meanings: IMU attitude, battery voltage, joint angles</li> <li>2.Parse the received byte stream using C++</li> <li>3.Implement real-time data printing</li> </ol>
	FRIDAY	<b>Wireshark Protocol Analysis Practice</b> <ol style="list-style-type: none"> <li>1.Configure packet capture filters</li> <li>2.Compare hexadecimal data with C++ parsing results</li> <li>3.Verify the control frequency: check if packet intervals are <math>\approx 2\text{ms}</math></li> </ol>
WEEK 2	MONDAY	<b>Basic Motion Sequence Programming</b> <ol style="list-style-type: none"> <li>1.Implement the sequence: Stand <math>\rightarrow</math> Move forward for 3s <math>\rightarrow</math> Stop <math>\rightarrow</math> Lie down</li> <li>2.Use functions to control motion timing</li> <li>3.Add an emergency stop safety mechanism</li> </ol>
	TUESDAY	<b>Real-time Status Monitoring &amp; Logging</b> <ol style="list-style-type: none"> <li>1.Continuously receive and print IMU data, battery level and speed</li> <li>2.Write data to a CSV file for subsequent analysis</li> </ol>
	WENDESDAY	<b>Keyboard Input Control</b> <ol style="list-style-type: none"> <li>1.Integrate the keyboard input module</li> <li>2.Implement controls: Press 'W' to move forward, 'S' to move backward, 'Q' to exit</li> </ol>
	THURSDAY	<b>Comprehensive Project A: C++ Keyboard Remote Controller</b> <ol style="list-style-type: none"> <li>1.Integrate UDP transmission, keyboard monitoring and status display</li> <li>2.Support WASD keys for direction and speed control</li> <li>3.Add timeout protection</li> </ol>
	FRIDAY	<b>Comprehensive Project B: Automatic Patrol Program</b> <ol style="list-style-type: none"> <li>1.Implement the patrol sequence: Move forward 2m <math>\rightarrow</math> Turn right 90° in place <math>\rightarrow</math> Return to the starting point</li> <li>2.Estimate displacement based on timing and fixed speed</li> <li>3.Automatically lie down after one patrol cycle</li> </ol>

The specific schedule is subject to the actual arrangements of the program.

# SUMMER SCHOOL OF MARINE "CARBON QUEST"

The program offers four courses in Naval Architecture and Ocean Engineering, covering topics such as ship structures and vessel design.

Faculty from partner institutions will deliver academic lectures to our faculty and students through the Academic Forum. Exchanges between Chinese and international students will also be encouraged.

Visits to local enterprises in Yantai, as well as cultural venues including the Yantai Museum and Science and Technology Museum, will be organized.

## AGENDA

 **LOCATION: Yan Tai, China**

 **DATE: June - July, 2026 | 2 Weeks | To be announced**

 **Enrollment Capacity : 15-40 participants**

WEEK 1	MONDAY	Opening Session, and Tour around the Campus and Labs
	TUESDAY	Technology of Marine Robot Platform Visit the Characteristic Town of Yantai Industrial Design
	WEDNESDAY	Introduction to Underwater Operation Equipment
	THURSDAY	Analysis on Fatigue Reliability of Ships and Marine Structures
	FRIDAY	Risk Assessment For Marine Engineering
WEEK 2	MONDAY	Human-factor Engineering for Ships and Marine Structures
	TUESDAY	Engineering for Disaster Prevention and Mitigation
	WEDNESDAY	Analysis on Structural Dynamism of Ships and Ocean Engineering
	THURSDAY	Hydrodynamics of Marine Wind Turbines
	FRIDAY	Structural Dynamics

The specific schedule is subject to the actual arrangements of the program.



# SUMMER SCHOOL OF GREEN SHIP

Hosted by the College of Power and Energy Engineering, this program responds to the global shipbuilding industry's green and low-carbon transformation. It aims to build a high-level academic exchange platform for Asia-Pacific marine power professionals and students, delivering cutting-edge knowledge and practical insights.



Aligned with industry development and technological innovation, the curriculum comprises three core modules:

## 1. FUNDAMENTALS

The fundamentals module covers Marine Power Systems and Introduction to Marine Power Plants, establishing a solid foundation for participants to master the discipline's overall framework.

## 2. ADVANCED TECHNOLOGY

The advanced technology module explores frontier fields including Advanced Optical Diagnostics for Spray and Combustion, Principles of Advanced Cycle Gas Turbines, and Viscous Flow and CFD Applications, keeping participants abreast of the latest industry trends.

## 3. HANDS-ON PRACTICE

The hands-on practice module features immersive experiences such as Virtual Diesel Engine Disassembly, Engine Room and Power Device Simulation, and Air Heat Engine Efficiency Measurement, bridging theoretical knowledge with engineering practice.



# AGENDA

 **LOCATION:** Harbin, China

 **DATE:** June - July, 2026 | 2 Weeks | To be announced

 **Enrollment Capacity:** 10-30 participants

WEEK 1	MONDAY	Marine Power System
	TUESDAY	General Introduction of Marine Power Plant
	WENDESDAY	Advanced optical diagnostics for spray and combustion
	THURSDAY	Thermal energy storage and utilization
	FRIDAY	Diesel engine structure virtual disassembly experience
WEEK 2	MONDAY	Principles of Advanced Cycle Gas Turbines
	TUESDAY	Engine room & power device stimulation
	WENDESDAY	Microscopic characteristics of impinging spray
	THURSDAY	Viscous flow and cfd application
	FRIDAY	Air heat engine test experiment

The specific schedule is subject to the actual arrangements of the program.



# SUMMER SCHOOL OF PHYSICS

The Summer School of Physics aims to conduct short-term scientific research training and cultural exchange activities and promotes the cultivation of international talents in physics.



The curriculum centers on frontier fields of modern physics, including quantum physics, optics, condensed matter physics, etc., with renowned scholars invited to deliver lectures. Its distinctive feature lies in integrating theoretical lectures with visits to key laboratories, while organizing joint seminars for teachers and students as well as achievement exhibitions to facilitate international academic exchanges.



# AGENDA



**LOCATION:** Harbin, China



**DATE:** August 18 to August 31, 2026 | 2 Weeks |



**Enrollment Capacity:** 20-40 participants

WEEK 1	MONDAY	Students arrived in Harbin and checked into the International Dormitory of Harbin Engineering University
	TUESDAY	Opening and Welcome Ceremony (Including Cultural Exchange Activities)
	WENDESDAY	Thematic Lectures on "Frontiers of Condensed Matter Physics" and "Optoelectronic Technology"
	THURSDAY	Visits to Key Laboratories and Demonstration Experiment Teaching
	FRIDAY	Thematic Lecture on "Optical Materials" and Thematic Seminar on "Innovative Design of Optoelectronic Devices"
WEEK 2	MONDAY	Thematic Lecture on "Intelligent Optoelectronic Detection Technology and Its Applications"
	TUESDAY	Thematic Lecture on "Laser Communication and Detection Technology"
	WENDESDAY	Thematic Seminar on "Global Challenges in the Field of Physics"
	THURSDAY	Academic and Cultural Exchange Activities
	FRIDAY	Learning Achievement Report and Exchange Meeting cum Closing Ceremony

The specific schedule is subject to the actual arrangements of the program.

## 学习成果汇报交流会暨结业典礼



# SUMMER SCHOOL OF MATERIALS SCIENCE AND CHEMICAL ENGINEERING

This summer school aims to provide a platform for in-depth learning and exchange among undergraduates majoring in materials and chemical engineering.

## BIOMEDICAL MATERIALS

Types, characteristics, applications and the latest research progress of biomedical materials.

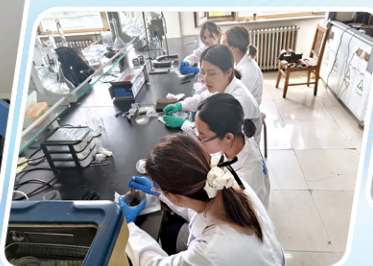
## BIOFUNCTIONAL MATERIALS

Structure-performance relationship, preparation methods and practical application cases of Biofunctional materials.

## BATTERY MATERIALS

Properties, manufacturing techniques and development trends of battery materials.

## COURSES AND CONTENTS



# AGENDA

 **LOCATION: Harbin, China**

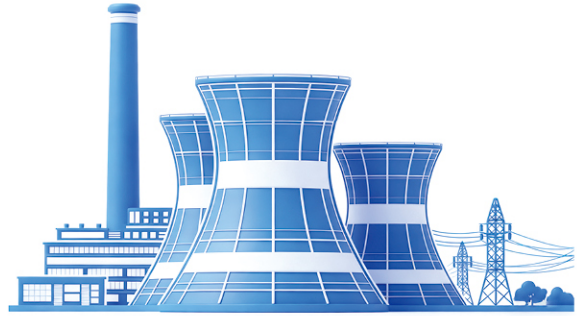
 **DATE: June - July, 2026 | 3-4 Weeks | To be announced**

 **Enrollment Capacity: 10-15 participants**

WEEK 1	MONDAY	Opening Ceremony , Safety Training
	TUESDAY	Symposium on Biochemistry , Biochemistry Course
	WENDESDAY	Chemosynthetic Experiment
	THURSDAY	Instrument Introduction
	FRIDAY	Cell Experiment
WEEK 1	MONDAY	Symposium on Electrochemistry
	TUESDAY	Electrochemical experiment
	WENDESDAY	Electrochemical experiment
	THURSDAY	Electrochemical experiment
	FRIDAY	Visiting Feihe Company
WEEK 3	MONDAY	Symposium on NiTi-based alloys and their biomedical application Experimental plan and explanation
	TUESDAY	Surface modification of biomedical titanium alloys
	WENDESDAY	Heat treatment of biomedical titanium alloys Structure characterization of biomedical titanium alloys
	THURSDAY	Symposium on Electrochemistry
	FRIDAY	Visiting Heilongjiang Geological Museum
WEEK 4	MONDAY	Morphological observation of biomedical titanium alloys
	TUESDAY	Graduation Report of Summer Camp Participants

The specific schedule is subject to the actual arrangements of the program.

# SUMMER SCHOOL OF NUCLEAR SCIENCE AND TECHNOLOGY



Through systematic lectures, team-based research, technical site visits, and cultural immersion, international students will deepen their understanding of nuclear science and technology innovation. Leveraging university-industry partnerships and national experimental platforms, participants will also gain appreciation for the achievements and cultural charm of China's nuclear industry.

## AGENDA



**LOCATION:** Harbin, China



**DATE:** July, 2026 | 3 Weeks | To be announced



**Enrollment Capacity:** 10-15 participants

WEEK 1	WEEK 2	WEEK 3
Application of Nuclear Engineering	Application of Nuclear Technology	Cultural Experience Activities

The specific schedule is subject to the actual arrangements of the program.



# HOW TO APPLY



**Application Deadline: May 31, 2026**

Applicants are supposed to use the Online Application System to submit applications:

 <https://hrbeu.at0086.cn/StuApplication/Login.aspx>

## APPLICATION MATERIALS

- 01 Scanned copies of the passport's photo page
- 02 Study Certificate issued by the present educational institution
- 03 English Proficiency Proof (Provided for applicants from non-English speaking countries)
- 04 Physical Examination Form for Foreigners
- 05 Non-criminal Record Certificate

Physical Examination Form can be download FORM HEU INTERNATIONAL STUDENT WEBSITE:

 <http://studyheu.hrbeu.edu.cn/en/index.htm>

## STEPS FOR THE ONLINE APPLICATION

- 01 Visit online application system: <https://hrbeu.at0086.cn/StuApplication/Login.aspx>
- 02 Create an account
- 03 Log in and choose "Non-Degree Program" Application Select "Short-term Program"-  
"Summer School International"
- 04 Start the online application and fill in all the required information

# FEES AND COSTS

**APPLICATION FEE** 400 yuan RMB (Candidates from Partner institutions will be waived)

**TUITION FEE** 2-week program: 3,300 RMB; 3-week program: 5,000 RMB; 4-week program: 6,600 RMB

**ACCOMMODATION FEE** 50 yuan RMB per day (including electricity and water)

**INTERNET** 60 yuan RMB per month (including 20 yuan RMB for installment), or purchase a SIM card for internet access

**INTERNATIONAL STUDENT INSURANCE** 120 yuan RMB for 2 weeks; 160 yuan RMB for 3 weeks to 4 weeks



# CULTURAL ACTIVITIES

We will offer a rich cultural experience, including traditional Chinese music, Tai Chi, papercutting, and tea art etc. And the city tour will give you a taste of Harbin's Unique charm.



**Traditional  
Chinese Music**



**Tai Chi**



**Papercutting**



**Tea Art**

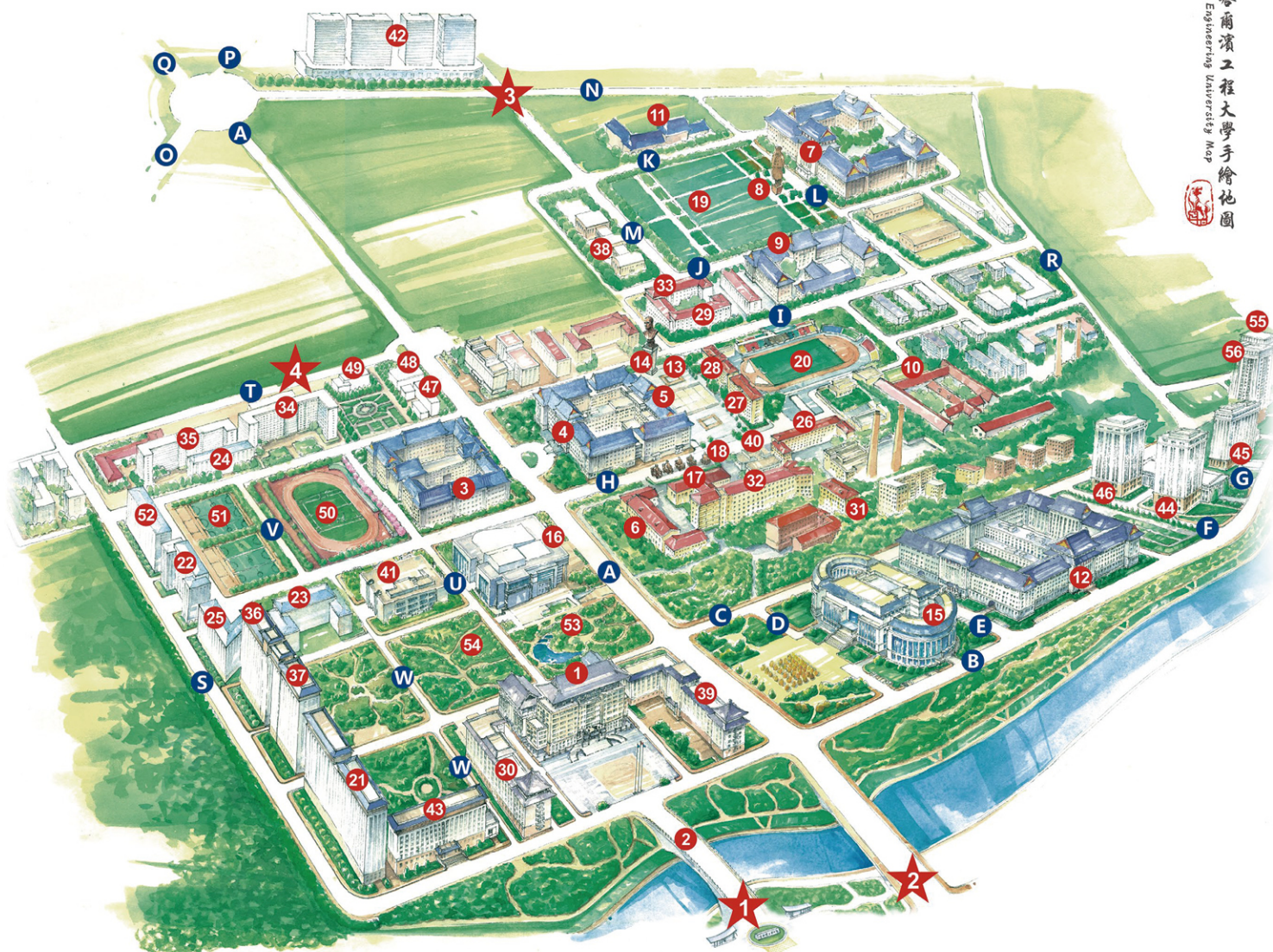
# ABOUT HARBIN



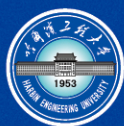
**Harbin Engineering University is located in Harbin, the capital city of Heilongjiang Province. As the political, economic, and cultural hub of northeast China, Harbin is a city of unique charm derived from its distinctive history and geography.**

It is an exotic and aesthetically pleasing destination that encapsulates the heritage of northern ethnic groups while seamlessly integrating Chinese and foreign cultures. Renowned as the "Ice City," "Oriental Moscow," and "Oriental Little Paris," and honored as the "City of Olympic Champions," Harbin stands as a major historical, cultural, and tourist destination in China, with a total population of 9.432 million.





A Wenmiao Street	★ School gate at Gongxue Bridge (Main Entrance)	20 The North Stadium	41 Cafeteria Building II
B Linyi Road	★ School gate at Hongqi Street (East Gate)	21 Foreign Expert and Student Apartment Building	42 National University Science and Technology Center
C Juying Road	★ School gate at Nantong Street (North Gate)	22 Student Dormitory Building 2	43 International Exchange Hotel
D Xuehai Road	★ School gate at Huashan Street	23 Student Dormitory Building 3	44 College of Shipbuilding Engineering Building
E Zihai Road	1 Office Building	24 Student Dormitory Building 4	45 College of Power and Energy Engineering Building
F Xushou Road	2 Gongxue Bridge	25 Student Dormitory Building 5	46 College of Underwater Acoustic Engineering Building
G Xinghai Road	3 Building 11	26 Student Dormitory Building 6	47 Yifu Science and Technology Building
H Shichang Road	4 Building 21	27 Student Dormitory Building 7	48 College of Science Building
I Chengeng Road	5 Building 21B	28 Student Dormitory Building 8	49 Laboratory Building
J Donghai Road	6 Building 26	29 Student Dormitory Building 9	50 The South Stadium
K Xihai Road	7 Building 31	30 Student Dormitory Building 10	51 Basketball Court
L Beihai Road	8 Statue of Chen Geng	31 Student Dormitory Building 11	52 HEU Hospital
M Nanhai Road	9 Building 41	32 Student Dormitory Building 12	53 Jihai Lake
N Nantong Street	10 Building 42	33 Student Dormitory Building 13	54 The Stone Park
O Xuanhua Street	11 Building 51	34 Student Dormitory Building 14	55 Building 34 (A)
P Xuanqiao Street	12 Building 61	35 Student Dormitory Building 15	56 Building 35 (B)
Q Yiman Street	13 Orekhov Square	36 Student Dormitory Building 16	
R Yanping Street	14 Statue of Orekhov	37 Student Dormitory Building 17	
S Chenggong Road	15 Library	38 Gymnasium	
T North Huashan Street	16 Qihang Activity Center	39 Basic Teaching Laboratory Building	
U Zhenghe Road	17 Memorial Hall of PLA Military Engineering Institute	40 Cafeteria Building I	
V Jingshui Road	18 "Five Great Men of China" Statues		
W Zhishui Road	19 Jungong Track and Field		



哈尔滨工程大学  
HARBIN ENGINEERING UNIVERSITY

# CONTACT US

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