

January 13-24, 2025

KU Winter Youth Camp 2025

Program Overview



Introduction

The Winter Youth Camp 2025 offers a unique opportunity for students to engage themselves in cutting-edge academic research, experience innovative sustainability solutions, and explore the UAE's dynamic culture. Hosted at Khalifa University, participants will engage in hands-on learning across advanced fields such as AI, robotics, and renewable energy, while also attending the World Future Energy Summit (WFES) 2025.

This program is designed to inspire future leaders and innovators by providing them with exposure to groundbreaking research, industry networks, and the UAE's leadership in sustainability initiatives.

Why Attend the Winter Youth Camp 2025?

1. **Cutting-Edge Research:** Engage with professors and researchers from Khalifa University in fields such as space technology, biotechnology, and robotics.
2. **WFES 2025 Visit:** Attend this global summit to explore how sustainability and innovation are shaping the future of energy, climate solutions, and smart technologies.
3. **Professional Development:** Gain career insights and connect with industry professionals through workshops and industry visits.
4. **Cultural Engagement:** Experience the UAE's rich heritage through cultural visits scheduled during the weekend.

Theme Selection

Participants will have the flexibility to choose their preferred theme to attend each day from the following themes:

1. Power & Energy
2. Water & Environment
3. Health
4. Robotics & AI
5. Aerospace
6. Advanced Manufacturing
7. Advanced Materials
8. Information & Communication
9. Sustainability

WFES 2025 Visit - Learning Outcomes

- Understand global sustainability challenges and how AI, renewable energy, and robotics are applied to address these issues.
- Network with global leaders and innovators working in energy and climate solutions.
- Gain inspiration for future academic and career pursuits in sustainability-focused industries.

International Study and Exchange

Participants will explore Khalifa University's International Study and Exchange Office. This session gives students the opportunity to learn about exchange programs, scholarships, and research opportunities available at Khalifa University and its partner universities worldwide. Students will gain insight into how they can return as exchange students or visiting researchers, making this session an essential step for those considering future international study opportunities.

Cultural Day & Universities Showcase

Students will participate in a cultural exchange, showcasing their home universities and exploring potential student exchange programs. The session will feature cultural performances and networking opportunities.

ADNOC Visit – Thamama and Panorama Centers

Participants will visit ADNOC's Thamama and Panorama Centers, where they will explore how ADNOC leverages AI, big data, and advanced digital technologies to optimize oil and gas production. The Thamama Center focuses on advanced subsurface technologies, while the Panorama Digital Command Center provides a real-time view of ADNOC's operations, demonstrating how data-driven decisions enhance efficiency and sustainability across the energy sector.

Program Agenda

Date	Time	Agenda Item	Speaker
Day 1: Jan 13, 2025	10:00 AM – 10:15 AM	Orientation and University Welcome	Senior VP for Academic Affairs
	10:15 AM – 11:00 AM	Academic Programs Overview	Dean of Graduate Studies
	11:00 AM – 12:30 PM	College of Engineering Overview	Associate Dean
	12:30 PM – 1:30 PM	Lunch Break	
	1:30 PM – 2:00 PM	KU Admission Presentation	KU PG Admission Team
	2:00 PM – 3:00 PM	Campus Tour	KU Staff
Day 2: Jan 14, 2025	10:00 AM – 3:30 PM	Themes: Power & Energy Water & Environment	Research Center Directors
Day 3: Jan 15, 2025	All day	Visit to WFES 2025	WFES Representatives
Day 4: Jan 16, 2025	10:00 AM – 3:30 PM	Themes: Health Robotics & AI	KU Researchers
Day 5: Jan 17, 2025	9:00 AM – 11:00 AM	Career Development Workshops	CTL
Day 6-7: Jan 18-19, 2025	All day	Cultural Visits: Sheikh Zayed Mosque, Louvre Museum	Guides
Day 8-9: Jan 20-21, 2025	10:00 AM – 3:30 PM	Themes: Advanced Materials Information & Communication	KU Research Leaders
Day 10: Jan 22, 2025	10:00 AM – 3:00 PM	Themes: Aerospace Advanced Manufacturing	Research Directors
Day 11: Jan 23, 2025	10:00 AM – 8:00 PM	International Study and Exchange Office Exploration, Cultural Day & Dinner Gala	International Study Office
Day 12: Jan 24, 2025	8:00 AM – 11:00	ADNOC Visit: Thamama and Panorama Centers	ADNOC Representatives

Appendix

Brief Introduction to Research Centers

1. Emirates Nuclear Technology Center (ENTC) Director Prof. Francois Foulon

ENTC conducts research in nuclear technology to support the UAE's nuclear power program and ensure safe, clean, and efficient nuclear energy. It focuses on areas such as nuclear safety, materials, chemistry, and radiation safety.

2. Sustainable Energy Virtual Research Institute – Director Prof. Samuel Mao

This institute is dedicated to transforming biotechnology research in Abu Dhabi to enhance healthcare outcomes. It collaborates with Khalifa University to advance healthcare innovation and research.

3. Advanced Power and Energy Center (APEC) – Director Prof. Ehab El-Saadany

APEC aims to develop intellectual and human capital for innovative energy solutions, including renewable energy integration, AI applications in power systems, and smart grids.

4. Research & Innovation Center on CO₂ & Hydrogen (RICH) – Director Prof. Lourdes Vega

RICH focuses on addressing energy and environmental challenges, particularly carbon capture and hydrogen production. It conducts research on new materials and processes for CO₂ capture and utilization, as well as H₂ production.

5. Center for Membranes & Advanced Water Technology (CMAT) – Director Prof. Shadi Hassan

CMAT tackles water scarcity challenges by developing sustainable and efficient membrane technologies. It aims to provide innovative solutions to water-related issues in the UAE and the GCC.

6. Center for Biotechnology (BTC) – Director Prof. Habiba Al Safar

BTC conducts research in biotechnology to promote health and well-being. It focuses on genetic diversity, clinical subsets, and demographic categories to uncover new knowledge in healthcare.

7. Healthcare Engineering Innovation Group – Director Prof. Mohammed Sagier

This group focuses on healthcare innovation and technology. It works to develop medical devices and technologies to address health challenges in the UAE, particularly cardiovascular diseases.

8. Space Technology and Innovation Center (KUSTIC) – Director Prof. Sean Swei

KUSTIC is dedicated to advancing space technology in the UAE. It trains students in satellite design and conducts research in space science and applications, supporting the UAE's space ambitions.

9. Space & Planetary Sciences Group – Director Prof. Mohammed Ramy Elmaarry

This group is part of KUSTIC and focuses on space science and technology initiatives. It plays a role in supporting the development of satellite technologies and space research in the UAE.

10. Advanced Research & Innovation Center (ARIC) – Director Prof. Yahya Zweiri

ARIC collaborates with industry partners to conduct research in advanced manufacturing. It offers facilities and expertise to test and develop new technologies in various industries.

11. Advanced Digital & Additive Manufacturing Group (ADMA) – Director Prof. Rashid Abu Al Rub

ADMA focuses on additive manufacturing (3D printing) and Industry 4.0 technologies. It provides a platform for research, development, and technology transfer in the field of advanced manufacturing.

12. Research & Innovation Center for Graphene & 2D Materials (RIC 2D) – Director Prof. Hassan Arafat

RIC 2D is dedicated to advancing research in graphene and other 2D materials. It aims to develop new materials and technologies with applications in various industries.

13. Center for Catalysis and Separations (CeCaS) – Director Prof. Kyriaki Polychronopoulou

CeCaS conducts research in catalysis and separations to address emerging challenges in these areas. It supports local and regional stakeholders in the water sector through capacity building and technology transfer.

14. Advanced Materials Chemistry Center (AMCC) – Director Prof. Ahsan Ul Haq Qurashi

AMCC focuses on advancing research in materials chemistry. It develops new materials and methods, conducts characterization, and explores applications in various fields.

15. Center for Cyber-Physical Systems (C2PS) – Director Prof. Ernesto Damiani

C2PS conducts research in Cyber-Physical Systems (CPS) and IoT technologies. It aims to deliver innovative CPS solutions, ensure security and privacy, and engage in industrial collaborations.

16. System-on-Chip Lab – Director Prof. Baker Mohammad

The System-on-Chip Lab specializes in electronic circuit and system design. It provides students with hands-on skills in electronic circuits design and conducts research in electronic systems.

17. KU Center for Autonomous Robotic Systems (KUCARS) – Director Prof. Lakmal Seneviratne

KUCARS focuses on robotics and autonomous systems research. It conducts research in various robotics applications and provides students with opportunities to work on exciting projects.

18. Emirates ICT Innovation Center (EBTIC) – Director Prof. Nawaf I. Almoosa

EBTIC is an ICT research and innovation center that supports the development of the Digital Networked Economy in the UAE and beyond. It conducts research in intelligent systems and Next Generation Networks (NGNs).

19. 6G Research Center (6GRC) – Director Prof. Merouane Debbah

The 6G Research Center is dedicated to advancing research in 6G technologies. It explores the potential of future wireless communication technologies beyond 5G.