UNISEC-Global The 60th Virtual Meeting

September 20th, 2025, 22:00-24:00
(Standard Japan time GMT +9)

The following report was prepared by UNISEC-Global Secretariat
September 25, 2025
Japan

Table of Contents

1 Opening Remarks

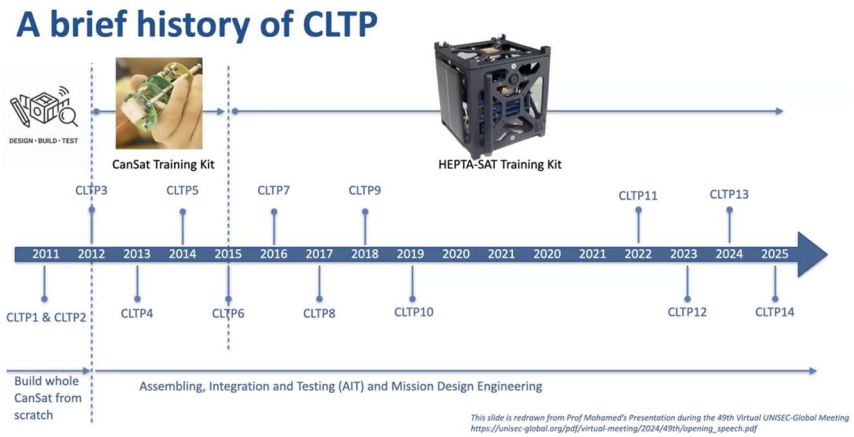
Joseph Matiko, Dar es Salaam Institute of Technology

Dr. Joseph Matiko is currently working as a lecturer at DIT, Tanzania. He is also the Centre Leader of a Regional Flagship ICT Centre, which is being established with the support of the World Bank. He obtained a BEng degree in Electronics and Telecommunication Engineering from the Dar es Salaam Institute of Technology (DIT), his MSc in Wireless Communications at Lund University, Sweden, and his PhD in Electronics and Computer Science at the University of Southampton, UK. His current research interests include blockchain technology, mobile computing, embedded electronics for IoT, energy harvesting for low-power electronic devices, machine learning, biomedical signal processing, and Space Technology.

Pictured: Dr. Matiko during his presentation

Highlights:

- CLTP stands for "CanSat Leadership Training Program"
- CLTP began in 2011 and has been conducted annually
- **Program designed to teach components and subsystems**
- And to teach how to integrate them into a satellite
- Participants learn to design, build, test, and launch small educational satellites
- And importantly, to teach others
- About CLTP 14
    - CLTP 14 was conducted at Nihon University
    - **From 19th August to 30th August 2025**
    - **The training was centered around the HEPTA-SAT training kit**



Pictured: Dr. Matiko presenting the history of CLTP

2 Presentation on “Overview of CLTP 14”

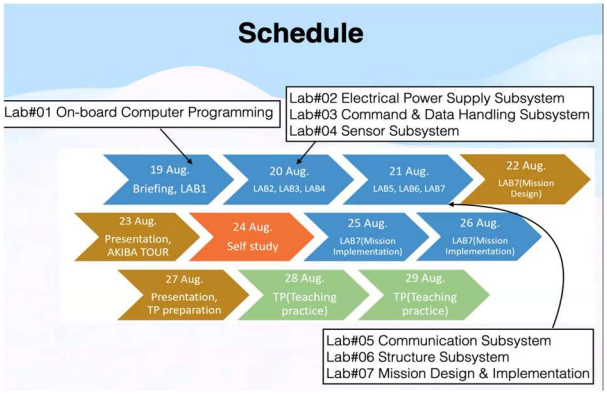
Shohei Aoki, Jomo Kenyatta University of Agriculture and Technology

Dr. Shohei completed his Bachelor’s degree in Aeronautics and Astronautics from the University of Tokyo, Japan, in 2009. He went on to earn his Master’s degree in 2012 and his Doctorate in 2015 from the same department and university. Following his studies, he worked as a research associate at Keio University. He is currently serving as an Adjunct Associate Professor at Jomo Kenyatta University of Agriculture and Technology in Kenya and founded the Nakuja Project.

Pictured: Dr. Shohei during his presentation

Highlights:

- **HEPTA-Sat raining has reached 1000+ trainees from 2012**
- CLTP 14 was conducted from August 19-29 at Nihon University
- HEPTA-Sat training general steps
    - **Step 1: Basic satellite system**
        - Learn the satellite bus based on HEPTA-Sat
    - **Step 2: Mission design and implementation**
        - Design and implement mission
        - HEPTA-Sat is designed to attach new missions
    - **Step 3: Learning by teaching**
        - Learner becomes a mentor
        - Knowledge gained through teaching
- This year, there were 15 participants from 13 countries with diverse backgrounds
- From university Professors to CEOs and students
- The lecture was given by Prof. Yamazaki
- HEPTA-Sat Training also consisted of clean room and lab visits
- The participants were divided into 4 teams
- Later, each made a presentation on mission design
- There was a lot of socialization involved and exchanging information/culture



Pictured: Dr. Shohei presenting the schedule of HEPTA-Sat Training

3 Presentation on “Satellite Hands-on Training, CLTP 14”

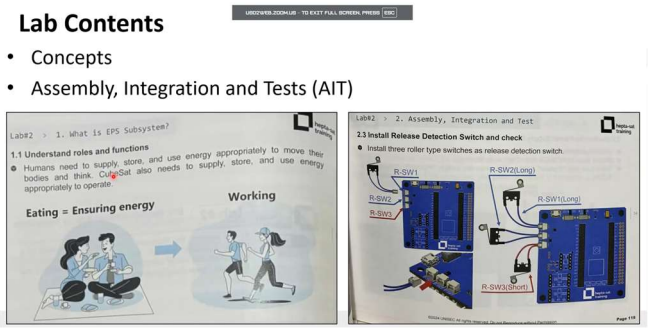
Marloun Sejera, Mapua University

Dr. Marloun P. Sejera earned his undergraduate and master’s degrees in Electronics and Communications Engineering at Mapua University. He was part of the team that built Maya-2 (the Philippines’ second CubeSat), which was successfully launched to the International Space Station. He had the opportunity to work alongside other distinguished Filipino engineers in the process. He completed his PhD from Kyushu Institute of Technology. Since 2011, he has been serving as an Associate Professor at Mapúa University in the Philippines.

Pictured: Dr. Sejera during his presentation

Highlights:

- There is a manual for HEPTA-Sat training
- The manual includes everything about training, easy to comprehend and learn
- There are 6 laboratory activities in 3 days
    - Lab 1: On-Board Computer
    - Lab 2: Electrical Power System
    - Lab 3: Command and Data Handling
    - Lab 4: Sensors
    - Lab 5: Communication and ground subsystem
    - Lab 6: Structure
- All the lab activities begin with concepts
- Part 2 of every lab is Assembly, Integration, and Test
- There is detailed instruction for the assembly of HEPTA-Sat
- If the participant is confused, a co-participant can always help
- Also, there is a time limit for every Lab
- Things to bring back from CLTP
    - **Lifelong learning is essential**
    - Learning by doing is very effective
    - **Collaboration and networking are opportunities**



Pictured: Dr. Marloun Silde on Lab Contents of HEPTA-Sat Training

4 Presentation on “Mission Design, CLTP 14”

Derrick Tebusweke, Northumbria University, UK

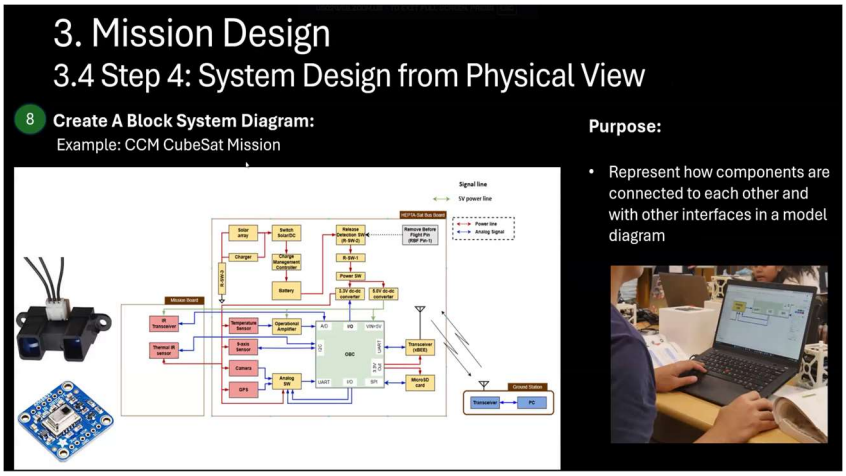
Mr. Tebusweke is a Space Systems Engineering researcher from Uganda. He completed his Bachelor's degree in Electrical Engineering at Makerere University, Uganda, and later earned a Master's degree in Electrical and Space Systems Engineering from Kyushu Institute of Technology, Japan. He contributed to the BIRDS-5 Project, which marked Uganda’s and Zimbabwe’s first CubeSat missions. He has also worked as a Research Associate in CubeSat projects at Northumbria University, UK, and as a Power Systems Engineer at Astroscale Limited, UK, where he was involved in the ELSA-M mission.

Pictured: Mr Derrick during his presentation

Highlights:

- Steps for Mission Design for HEPTA-Sat Training
  - **Step 0: Overview of Systems Design**
    - First is to understand user needs, and this can also come from reading academic papers
    - Then comes the mission requirement, which is the operations view
    - After this is the system requirement, which is the functional view
    - Finally comes the component design
  - **Step 1: Requirement Development Example**
    - Obtain user needs from the country background
    - Example: climate change monitoring CubeSat mission
    - Use ground sensors and terrestrial networks for monitoring
    - Launch satellite, get data, and send it back
    - **Conduct operational scenario tradeoff and have options**
    - Create a mission goal
  - **Step 2: System Design from Operational View**
    - Create a concept sketch showing interrelationships between systems
    - Including launcher, satellite, ground station, and operation
    - Create success criteria containing minimum success, full success, and advanced success
    - Finally, create a flow chart with the entire sequence diagram, including sensors
  - **Step 3: System Design from Functional View**
    - Create a function decomposition diagram
    - **Block diagram of the component and its function**
    - Easy to understand relationship between features, functions, and components
  - **Step 4: System Design from Physical View**
    - Create an entire **Block system diagram** representing every component
    - Show how each system is connected to the others
  - **Step 5: Mission Design Review**

        - Present all the above in a Mission Design Review
        - **Where it will be decided whether the mission is viable**
    - **Step 6: Component Selection**
        - BBM model stage, where participants procured components
    - **Step 7: Experimental Setup/Breadboarding**
        - Interconnect components to achieve the mission
    - **Step 8: Experimental Source Code**
        - Use version control software like GitHub
        - Keep and test software systematically
    - **Step 9: Preliminary Design Review**
        - Final project presentation and graduation towards being a Teaching Assistant (TA)
        - Participants present the final working breadboard module
- Lessons learned from CLTP
    - Ensure component pins are fully inserted in the breadboard
    - Easy to learn with an extra mission
    - Dedicated mission board to handle missions



Pictured: Mr. Derrick presenting block diagram of his team

5 Presentation on "Experience at Akihabara, CLTP 14"

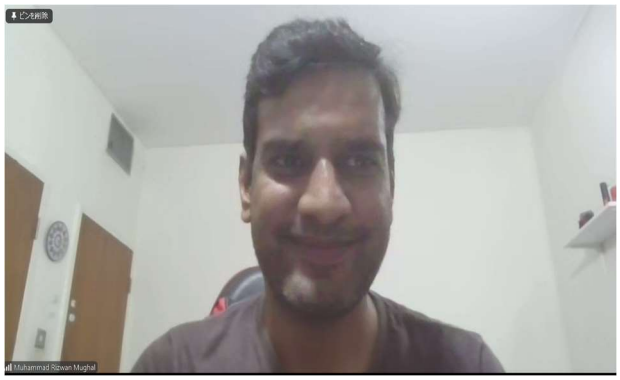
Muhammad Rizwan Mughal, Sultan Qaboos University

MUHAMMAD RIZWAN MUGHAL (Senior Member, IEEE) received the B.E. degree (Hons.) in Electrical Engineering from the University of Engineering and Technology, Taxila, Pakistan, in 2007, and the Ph.D. degree in Electronics and Communication Engineering from the Department of Electronics and Telecommunications, Politecnico di Torino, Turin, Italy, in 2014.

He has served as an Associate Professor with the Institute of Space Technology, Islamabad, Pakistan, where he contributed to the establishment of advanced laboratories in embedded systems and satellite engineering, and later at Aalto University, Finland, as a Postdoctoral Research Fellow in the Department of Electronics and Nano-Engineering. He is currently an Associate Professor with the Department of Electrical and Computer Engineering, Sultan Qaboos University, Muscat, Oman.

Dr. Mughal's research interests include the application of artificial intelligence and machine learning in embedded and space systems, plug-and-play nanosatellite subsystem designs, and systems engineering for CubeSats and small satellites. He has authored and coauthored numerous journal and conference papers in these areas and actively engages in regional and international collaborations. He has also been involved in space technology capacity-building initiatives in the

Gulf region, fostering partnerships between academia, industry, and government to advance next-generation space missions.



Pictured: Dr. Mughal pictured during his presentation

Highlights:

- Missions of 4 groups in CLPT 14
    - Climate Change Monitoring (CCM) CubeSat
    - AtmoHEPTA: In-Situ Atmospheric Mass Density Detection
    - MIZU (Monitoring of Irrigation Zones using satellites)
    - TerraQuake: Earthquake Warning System
- Akihabara Visit
    - Biggest electronic market in Tokyo
    - Real-world market experience for sourcing components
    - Adventurous tour
    - Every team searched for components separately
    - Gained insights into component selection, cost, and feasibility for the mission
- Asakusa Evening Program
    - After Akihabara participants join the Asakusa evening, a well-organized social dinner
    - Dinner with space industry professionals creating opportunities
    - Networking, sharing experiences, and strengthening collaboration
- Learned to think differently and how to start thinking of a mission
- Learned how to build a satellite
- CLTP 14 had a lot of technical and cultural depth

6 Presentation on “Overview of Teaching, CLTP 14”

Marian Duval, Dominican Astronomical Society

Ms. Marian Duval is an Electronics and Communications Engineer who graduated from Universidad Acción Pro Educación y Cultura (APEC University). She has been an active member of the Dominican Astronomical Society (AstroDom) for over nine years and currently serves as its President. AstroDom is a nonprofit organization dedicated to promoting astronomy across the country. Ms. Duval also serves as a team leader of software QA testers at Newtech S.R.L., where she applies her technical expertise and leadership skills to ensure the quality and reliability of software products.

Pictured: Ms. Duval during her presentation

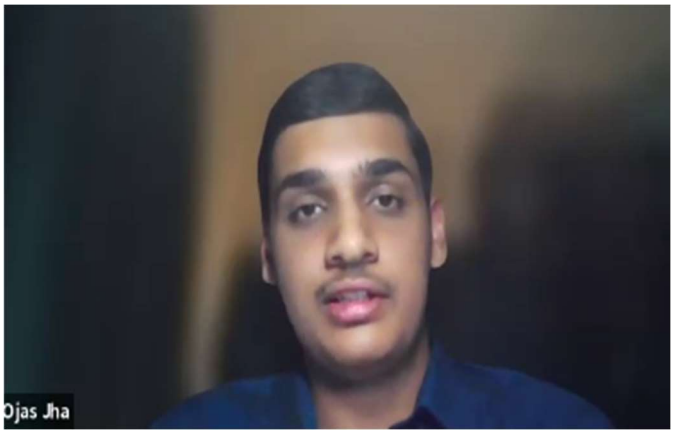
Highlights:

- Purpose of the teaching practice
  - Designed to prepare participants to become the next instructors after graduating from CLTP
  - Participants act as multipliers in their home countries, sharing CubeSat technology
  - Expanding its impact
- Teaching experience was held on August 28-29,2025
- Students were professionals from various Japanese tech companies
- Most have limited technical or programming experience
- CLTP14 participants customized the program to match their students' profiles
- Experience of CLTP 14 participants
  - Guided a condensed 2-day version of the 2-week program
  - Divided into groups, each supported by a Teaching Assistant
  - After a quick content review, students developed a CubeSat project
  - And presented their results, all missions were successful

7 Presentation on "Personal Experience and Overview, CLTP 14"

Ojas Jha, The Arbor School

Mr. Ojas Jha is a high schooler studying at The Arbor School, UAE. He is originally from India. He is interested in Astrophysics, Particle Physics, Material Science and Battery Technology and he aims to contribute with research on these topics in the future. He has also led winning teams participating in engineering competitions like the International Dyson Engineering Challenge and F1 in Schools and won several national & international competitions in science and mathematics. Furthermore, he believes that frontier technology should be accessible to anybody willing to take part in its development, not just people of a specific nationality. To further his goals, he is currently developing an educational CubeSat kit to bring an experience similar to CLTP to UAE for other high school students.



Pictured: Mr. Jha during his presentation

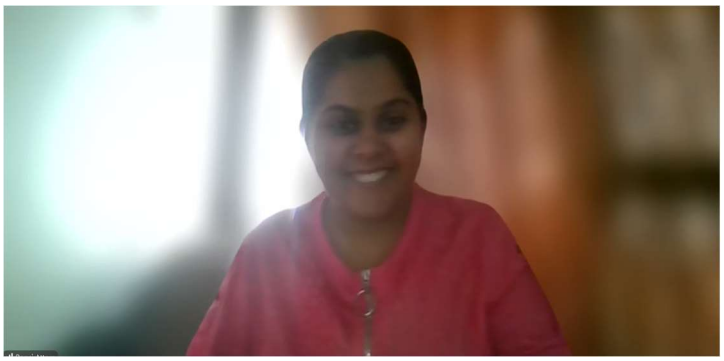
Highlights:

- High school level competitions became too simplified, looking for something new
- Many similar programs in the UAE, limited to UAE citizens
- While surfing the internet, he came across CLTP, meant for university students
- **Wanted to join, Prof. Yamazaki took an interview with him and studied for the exam**
- Was a great learning opportunity
- **All the teachers were excited to help the participants**
- Very comprehensive course compressed down into 10 days
- Teamwork was also a memorable experience
- Teaching Experience
    - Since he is a high school student, the teaching component was a first time for Mr. Ojas
    - This helped him build skills regarding teaching
- Self-Reflection
    - He feels the course was challenging but never out of reach
    - He learnt a lot. Even from other participants, as they were all senior to him
    - Course was worth it, not only due to the material, various networking opportunities
- Next Step is to build similar opportunities in the UAE
- **Something that is not exclusive to UAE citizens**
- Something that has both online teaching modes and offline

8 Presentation on "How CLTP 14 Impacted Me"

Bansi Attara, CUBESAT AEROSPACE LLP

Ms. Bansi Attara completed her MTech in Electronics and Communications from Nirma University in 2020, where she specialized in communication. She is the founder and CEO of CubeSat AeroSpace LLP. The company deals with making small satellites and has a STEM education program with over 20 school students.



Pictured: Ms. Attara during her presentation

Highlights:

- What Ms. Bansi learned at CLTP 14
    - Practical Exposure through system design, integration, launch, and operation
    - Global teamwork, worked with participants from diverse cultures
    - Learned about their thinking process
    - Spirit of Innovation, turned challenges into learning opportunities
- Strengthened her belief in "Learning by Doing"
- Motivation to inspire young engineers
- **Plan to bring CanSat methodology to India**
- Integrating lessons into her SanskarSat mission

9 Presentation on "A Journey of Growth and Discovery, CLTP14"

Essien Ewang, National Space Research and Development Agency

Dr. Essien Ewang received his Ph.D. in Space Systems Engineering from the Department of Engineering, Kyushu Institute of Technology, Japan, in 2017. He studied and obtained an M.Sc. in Electronic and Electrical Engineering, Obafemi Awolowo University, Ile-Ife, Nigeria, in 2014. He also studied and obtained B.Eng. in Electrical and Electronic Engineering, M.Sc. in Public Order and Information Management (POIM), and B.Sc. in Mathematics, University of Uyo, Uyo, Nigeria, in 2009, 2005, and 2000, respectively. Presently, he is serving as a Space Systems Engineer in CSTD under the auspices of the National Space Research and Development Agency (NASRDA) in Nigeria. He is the Head of Industry and Academic Linkage, among other positions. Additionally, he is an Assistant Professor in the Institute of Space Science and Engineering, NASRDA, an affiliate of the African University of Science and Technology, Abuja, Nigeria. He also serves as an Adjunct Assistant Professor at the University of Abuja, Nigeria. His research interests include Small Satellite, Space Environment Interactions, and Innovations.

Pictured: Dr. Essien during his presentation

Highlights:

- By the end of HEPTA-Sat training, participants typically
  - Understood the architecture of satellite subsystems
  - Gain hands-on experience in satellite assembly, programming, and testing
- Develop systems engineering skills
- Breaking down complex systems into the simplest forms
- Integration of components, learn to troubleshoot and debug
- From learner to leader, build confidence to teach
- Team Project
  - AtmoHEPTA In-Situ Atmospheric Mass Density Detection
  - To measure atmospheric density using the ideal gas equation
  - To measure atmospheric density using the satellite drag equation
- Teaching at CLTP was not just about transferring knowledge
- Inspiring curiosity, building trust, and creating a space where others could thrive
- **Personal growth included leadership, adaptability, empathy, and teamwork**
- Emotional highlights included the joy of seeing a satellite system work after hours of debugging
- Human connection with late-night conversations and turning teammates into lifelong friends
- Transformation of feeling empowered as an instructor
- Keeping in mind the power to inspire others
- **CLTP was not just a program; it was a turning point**
- CLTP 14 was a transformative experience and has given a deeper sense of purpose
- To advance space education locally, foster global STEM collaboration
- Importantly, make satellite technology accessible to all
- CLTP has taught him to build a vision for the future

Pictured: Dr. Essien presenting cultural exploration during CLTP 14

10 Presentation on "CLTP14 Teaching Assistant Experience"

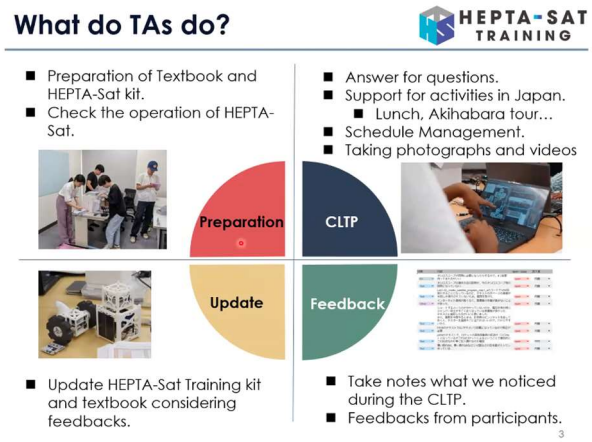
Yusuke Otsuka, Nihon University

Mr. Yusuke is a first-year Master's student at Nihon University. He works in structural and thermal designs, and the attitude determination control system of the PRELUDE-Project. PRELUDE is a 6U-sized satellite project. He has also been a TA in various HEPTA-Sat workshops in the Philippines, CLTP 12, 13, and so forth.

Pictured: Mr. Otsuke during his presentation

Highlights:

- CLTP Tas provides technical support during training, sharing of knowledge
- Development of HEPTA-Sat contents, including textbook, hardware, and software
- Preparation for Trainings, including time schedules, sharing each group's situation
- TA members belong to the Yamazaki Lab, involved in satellite development
- At CLPT 14, 10 TAs attended
- **6U-sized CubeSat, "PERLUDE" developed mainly by Yamazaki Lab**
- **A satellite to detect seismic precursors in the Ionosphere**
- Scheduled to be launched in FY2025
- Teaching someone is a good way to ensure knowledge
- **Learned the need to improve English skills**
- Could learn about foreign cultures from participants
- TA and participants communicated a lot outside of lectures too



Pictured: Mr. Otsuke presenting work of TAs during CLTP 14

11 Announcement and Acknowledgment

Haruka Yasuda, UNISEC-Global

Pictured: Yasuda-San announcing the latest updates from UNISEC-Global

Highlights:

- **Nano-satellite IoT Constellation Program**
  - A new program launched by UNISEC-Global
  - Jointly design satellite bus (3-6U) with online guidance
  - Each satellite will be developed by each country with its own funding
  - If difficult, we will jointly search for international funds
  - All the satellites have the **same mission payload** to contribute to solving global problems
  - Or local **problems as a constellation**
  - Each country can have **one specific mission payload** for its own interest
  - Web: https://unisec-global.org/iot.html
  - Interested ones can submit the form here: https://forms.gle/WcdvQ9GiQV9rxssj6
  - **The IoT workshop is scheduled on November 2 at the 11th UNISEC-Global Meeting**
  - Contact: iot@unisec-global.org

- **The Mission Idea Contest**
  - The 9th Mission Idea Contest: to the Moon
    - Theme: Lunar Mission
    - https://www.spacemic.net/
    - 25 abstracts were submitted from 14 countries
    - 10 finalists and 4 semi-finalists are selected
  - **Important Dates:**
    - Full Paper submission due: August 25, 2025 (Finalists and Semi-finalists)

- Final Presentation : November 1, 2025, at the 11th UNISEC-Global Meeting in Tokyo
- Contact: info@spacemic.net

- **CLTP14 (CanSat/ CubeSat Leader Training Program)**
  - **Completed: August 19 – 29, 2025**
  - Venue: Nihon University, Chiba, Japan
  - 15 participants attended CLTP14 this year
  - CLTP14 Website: https://cltp.info/cltp14.html
  - Contact: secretariat@cltp.info

- **The 11th UNISEC-Global Meeting**
  - Date: November 1 - 4 2025
  - Venue: Tokyo, Japan
  - Normal registration is until October 24, 2025
  - https://www.unisec-global.org/meeting11.html
  - **Tentative Program (T.B.C)**
    - November 1: Opening Ceremony, The 9th Mission Idea Contest: to the Moon, Reception
    - November 2: Nano-satellite IoT Constellation Program Workshop
    - November 3: Regional Report, Deep Space Workshop, Student Session, POC Meeting
    - November 4: Supporter Presentation, Industry Visit, Gala Dinner

- **Call for proposal for 15th Nano-Satellite Symposium and the 12th UNISEC-Global Meeting 2026**
  - The next 11th UNISEC-Global Meeting will be held in Japan in 2025
  - Will call for proposals for the venue of the Nano-Satellite Symposium
  - And for UNISEC-Global Meeting in 2026
  - **Important Dates**
    - Proposal submission due : September 30, 2025
    - Proposal presentation : October, 2025 (at Virtual UNIGLO meeting)
    - Local Chapter voting : October 2025
  - Download the format here: https://unisec-global.org/support.html
- **Launch Opportunity: J-Cube**
  - Special Discounted opportunities
  - 1U, 2U, 3U, deployment from International Space Station
  - Collaborate with UNISEC-Japan's University
  - Technical support will be provided
  - Contact: info-jcube@unisec.jp , http://unisec.jp/serviceen/j-cube

- **Next Virtual Meeting**
  - Date: October 18, 2025
  - Theme: T.B.D
  - Host: T.B.D

12 Participant Statistics

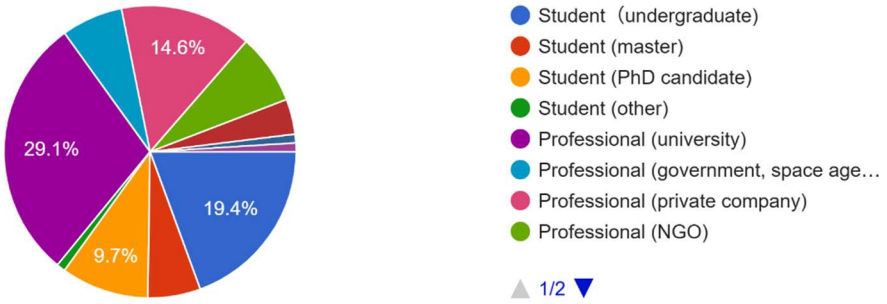
103 registered participants from 34 countries and regions for the 60th Virtual UNISEC-Global Meeting.

Country/Region	Registrants	Country/Region	Registrants
Argentina	1	Nigeria	7
Australia	1	Oman	1

Brazil	1	Paraguay	2
Bulgaria	6	Peru	1
Burkina Faso	6	Philippines	4
Chile	2	Russia	2
Colombia	1	South Africa	1
Côte d'Ivoire	1	Taiwan	1
Dominican Republic	1	Tanzania	3
East Timor	1	Tunisia	2
Egypt	8	Uganda	2
Finland	1	UK	1
India	7	UAE	1
Japan	13	Uruguay	1
Kenya	14	USA	2
Mexico	2	Zambia	2
Nepal	3	Zimbabwe	1

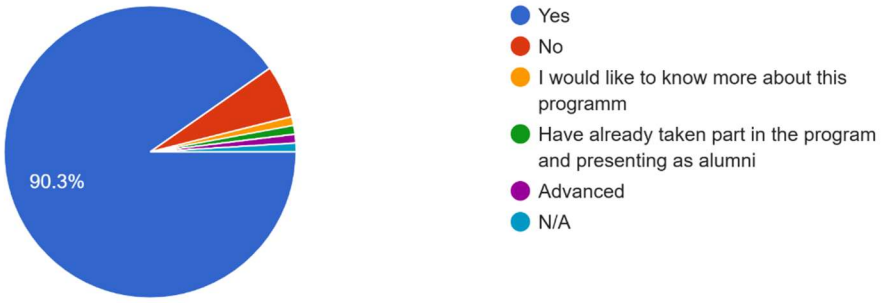
Student or professional?

103 responses



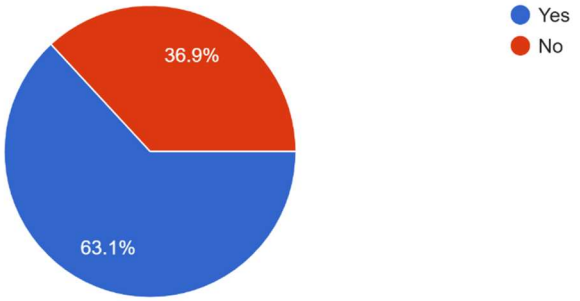
Are you interested in CLTP(CanSat/CubeSat Leader Training Program)?

103 responses



Have you participated in the UNISEC-Global Meeting previously?

103 responses



Thank you