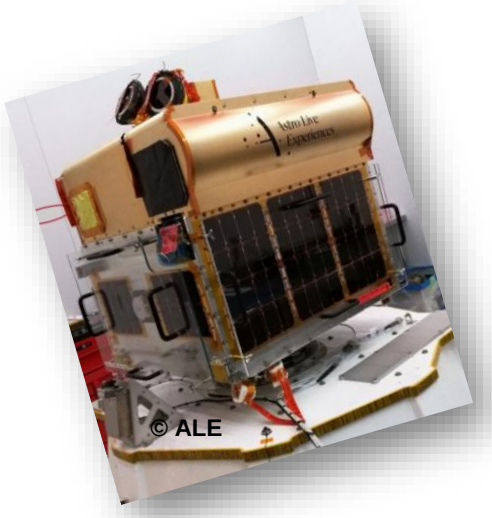
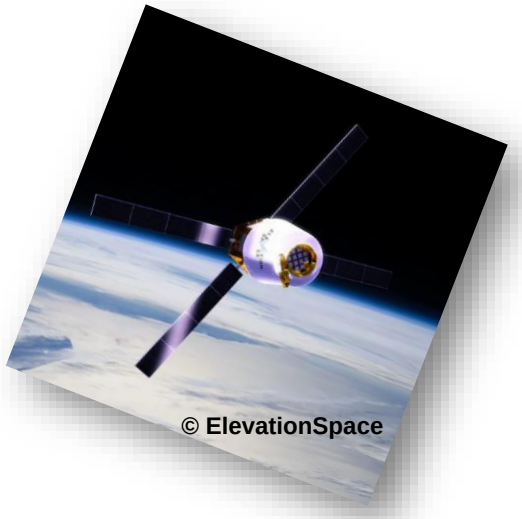
13th Virtual UNISEC-Global Meeting



Associate Professor, Toshinori Kuwahara
(UNISEC Japan Chairperson)
Department of Aerospace Engineering
Tohoku University



September 18, 2021
UNISEC Global Meeting #13

NEWS from UNISEC-Japan

Introduction

UNISEC-Japan Chairperson

FREEDOM (~1.3kg)

ALE-1 (~70kg)

ElevationSpace Inc.

Toshinori Kuwahara, Dr. –Ing.

2015 - Associate Professor, Tohoku University

Research Topics

Micro and nano-satellite technologies for space development and utilization.

2017 - Nakashimada Engineering Works, Ltd., Technical Advisor

2017 - ALE Ltd., CTO / Technical Advisor

2020 - UNISEC Japan Chairperson

2021 - ElevationSpace Inc. Co-founder / CTO

Contents

1. Introductioin
2. UNISEC-Japan’s Space Engineering Education Activities
    1. Activity Overview
    2. UNISEC Academy
    3. UNISEC-Japan’s Micro and Nano-satellite S&MA Activities
3. International Contributions
    1. KiboCUBE Academy
    2. J-CUBE

2. UNISEC-Japan's Space Engineering Education Activities

2.1. Activities

Hands-on Training

- CANSAT
- CLTP: CANSAT Leader Training Program
- HEPTA-Sat Training
- Hybrid Rocket
- ARLISS: A Rocket Launch for International Student Satellites

Practical Implementation

- CANSAT Working Group
- Rocket Working Group ⇨ Commercial Rocket
- Satellite Working Group ⇨ Commercial Micro-satellites

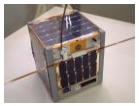
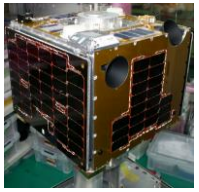
Academic Research Advancement

- UNISEC Academy – Space Engineering Lecture Series
- UNISEC Space Takumi Conference / Journal
- Micro and Nano-satellite Lessons Learned Research Group
- Publications

- MIC: Mission Idea Contest / Debris Mitigation Competition
- Workshop
- Safety and Mission Assurance Support
- Frequency Allocation Support (for satellites)
- Various diverse events (Such as Space Job Fair)



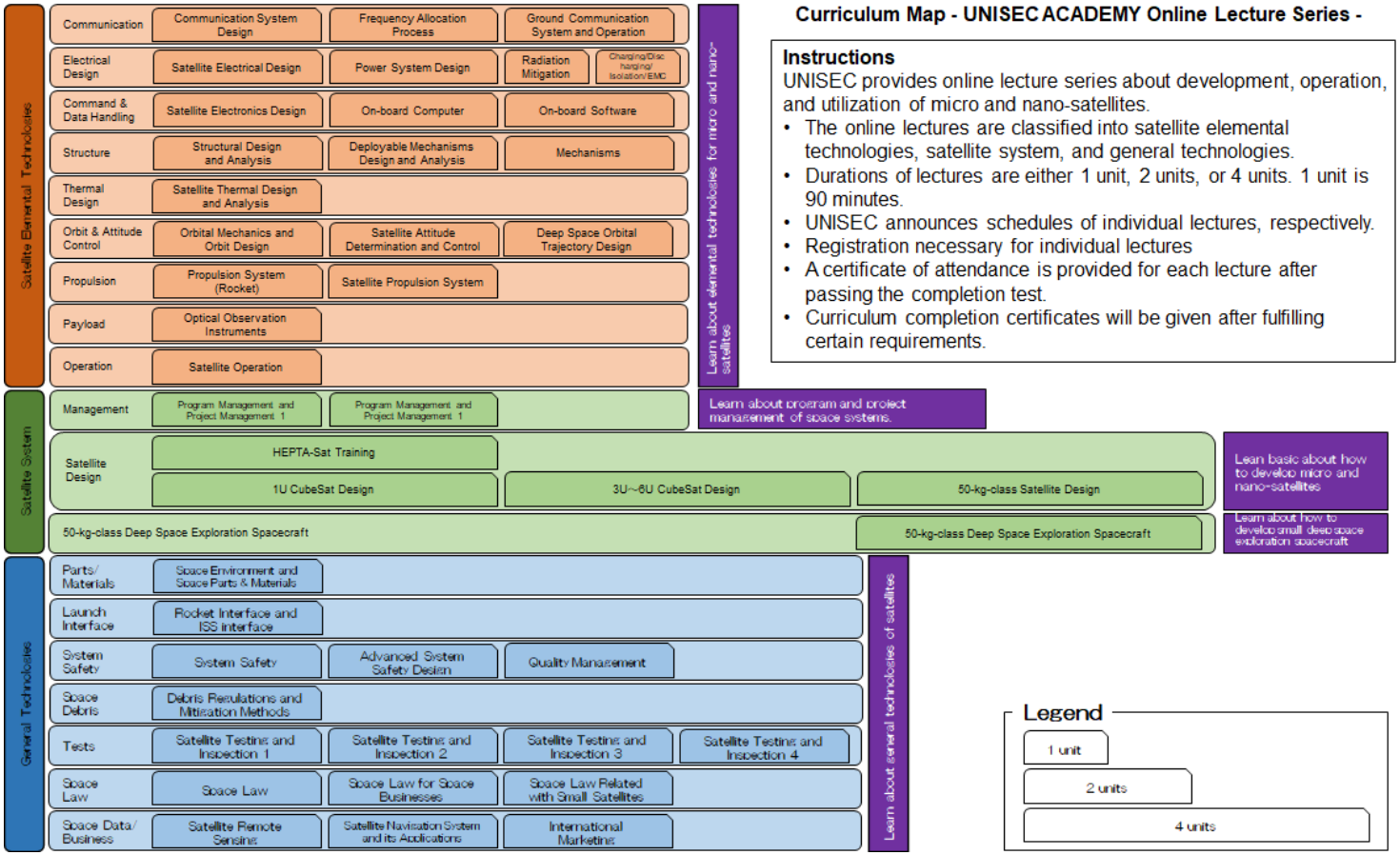


2. UNISEC-Japan's Space Engineering Education Activities

2.2. UNISEC Academy – Space Engineering Lecture Series

- UNISEC is offering a series of lectures for space development and utilization in Japanese. (English curriculum is coming soon.)

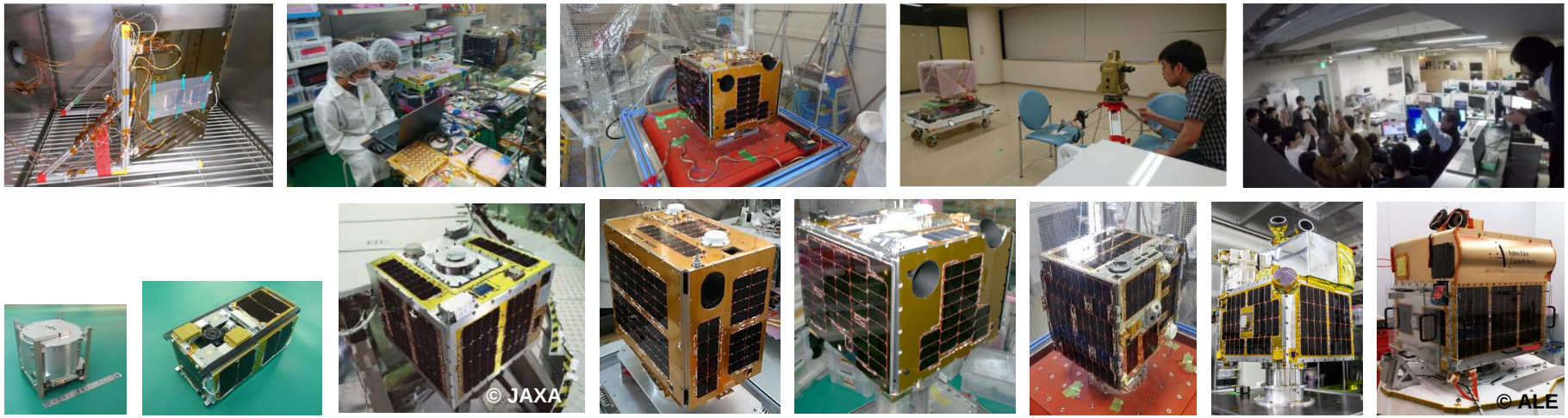


http://unisec.jp/service/lecture (Jp)

2. UNISEC-Japan's Space Engineering Education Activities

2.3. UNISEC-Japan's Micro and Nano-satellite S&MA Activities

- Micro and Nano-satellite Lessons Learned Research Group of UNISEC-Japan consists of about 20 Universities and research institutions which have experiences of micro and nano-satellites development and operation.
- In 2020, the group started actively sharing Lessons Learned of micro and nano satellites development, verification and operation on an every-week online seminar basis.
- In 2021, the group is aiming to establish a handbook about the safety and mission assurance of micro and nano-satellites based on the above research.



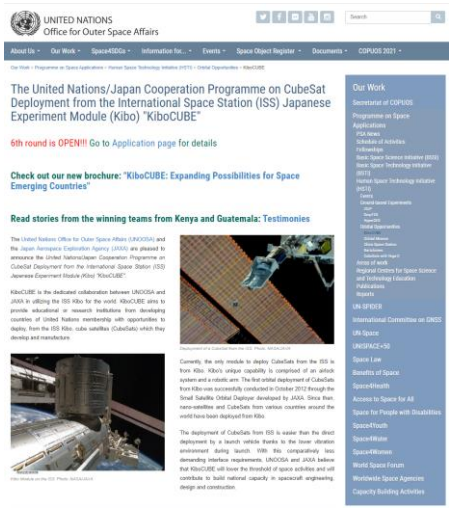
Micro and nano-satellites development activities of Tohoku University

Contents

3. International Contributions

3.1. KiboCUBE Academy

- KiboCUBE: United Nations/Japan Cooperation Program on CubeSat Deployment from the ISS-Kibo for educational or research institutions from developing countries of United Nations membership.
- In 2020, UNISEC supported KiboCUBE Academy implementation providing 6 online lectures about space engineering technologies for micro and nano-satellites.
- In 2021, UNISEC supported KiboCUBE Academy implementation providing 14 online lectures about space engineering technologies for micro and nano-satellites.



KiboCUBE Academy: Technical insights for a better Application

<< CLICK HERE for details (agenda and bio of lecturers) >>
14 January 2021 Click here for the video
- Introduction of KiboCUBE Academy by Yasuko Shibano, JAXA
(pdf and video 12:16-19:54)
- CubeSats Change the World by Toshinori Kuwahara, Tohoku Univ.
(pdf and video 20:38-54:24)
- Introduction to CubeSat Technologies by Toshinori Kuwahara, Tohoku Univ.
(pdf and video 1:04:49-1:56:47)

21 January 2021 Click here for the video
- Overview of Satellite Development Process by Shinichi Nakasuka, Tokyo Univ.
(pdf and video 6:48-51:13)
- How to Make Your Satellite Survive in Space by Shinichi Nakasuka, Tokyo Univ.
(pdf and video 1:02:10-1:39:43)

28 January 2021 Click here for the video
- Introduction to Satellite Testing by Mengu Cho, Kyushu Institute of Technology
(pdf and video 4:25-49:16)
- CubeSats fro Capacity Building by Mengu Cho, Kyushu Institute of Technology
(pdf and video 1:00:57-1:43:11)

4 February 2021 Click here for the video
- Satellite Operation and Related Regulations by Toshinori Kuwahara, Tohoku Univ.
(pdf and video 5:02-1:05:07)
- Q and A

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https://www.unoosa.org/oosa/en/ourwork/psa/hsti/kibocube/2020.html

3. International Contributions

3.2. JAXA-UNISEC Partnership for CubeSat Release from the ISS-Kibo.

- UNISEC-Japan signed an MOU with JAXA on April 1, 2021 about “Comprehensive collaboration agreement on CubeSat release from ISS-Kibo for academic research and capacity building.”
- J-CUBE
  - Establish an international capacity building system that makes the most of the technological capabilities of domestic Universities and research institutions as collaborative efforts between JAXA, UNISEC, and those related domestic Universities and research institutions.
  - Domestic advanced missions are also the candidate, in order to strengthen the domestic human resources and capacity building capabilities, as well as to improve the technology level of involved UNISEC member Universities and research institutions.
  - Strategic pricing for the launch service.
  - Up to 12 U CubeSat per year (Each satellite is 1~3U).
  - Details will be announced, soon.

Thank you very much.