CanSat Education: How to organize CanSat Leader Training Program

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Outline

• CanSat education
• Review of previous meetings
• Objective of Localization
• Existing CLTPs
• Typical CanSat Curriculum
• Available tools
• Challenges in organizing the local CLTP
CanSat Education

Universities

CanSat

CubeSat

Large Spacecraft

Space Agencies

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Issues and possible solutions:

• Lack of Instructors
  • (1) Continue CLTP in Japan, (2) Start more Local CLTP, (3) CanSat education at 3rd UNISEC-Global meeting?

• Hardware import restrictions
  • We want to ask for UN certificate

• Lack of coordinators
  • We recommend to form UNISEC-GlobalEducation Committee

• Lack of funding
  • UNISON-global can look for corporate sponsors
Review of Previous Meeting

3rd UNISEC-GLOBAL MEETING

**CanSat Syllabus**
- Understand the satellite subsystems
- Study and implement SE/PM in a prescribed way
- Understand the importance of team work
- Programing of Micro-Controllers and interface with sensor and actuators
- Structural Design of CanSat
- Aerodynamic Design of Parachute
- Calculation of the power and mass budget.
- Design and Realizing PCBs
- How to use the design tools (Solid Modeling, Analysis software, ...)

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Objectives of Localization

• Accelerate the spreading of CanSat Education.
• Contribute to the local capacity building in Space Engineering.
• Improve the teaching methods of CanSat Education.
Existing CLTP-Japan

• Lectures
  • Set of Introductory online lectures

• Hands-on
  • Assembly, Test, and Integration of CanSat kit
  • Launching and Analyzing the Launch results
  • Presentation
CanSat Syllabus

• **Description:**
  • In this training course the participants will have the opportunity to learn different aspects of satellite subsystems through introductory set of lectures followed by hands-on training that cover the following topics:
    • Microcontroller Programming
    • Sensor and Actuators Interfaces
    • GPS Interface, configuration, and data extraction.
    • Communication Subsystem (Xbee)
    • PCB Fabrication Technique
    • Soldering Technique
    • Rapid Prototyping (Laser Cut, 3D printer, CNC)
    • Parachute Design and Fabrication
    • Ground Station Software (Processing and Labview)
    • Project Management
    • System Engineering
    • Drop test, data analysis and presentation.

• **Target participants:** Undergraduate Engineering Students

• **Duration:** two weeks, Project: one week
Available Tools

- i-CanSat kit
- CanSat Textbook

Text book (Currently in Japanese)

CanSat kit
Challenges in organizing the local CLTP

• Languages
• Hardware/Kit
• Presentation Materials
• Administrative Aspects
• Launching CanSats
• Others