Panel Discussion
- Capacity Building for Satellite Development -

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1. What are the required capacities for satellite development

① Basic knowledge and utilization skills of mathematics, physics, electronics, structure/thermal dynamics, etc.

② Knowledge about space: i.e., what kind of special considerations are required for developing space systems, etc. (space environment, non-maintainable systems, required ground tests, etc.)

③ Skills of conducting system design to realize a certain mission: ability to reconcile between "what you want to realize" and "what you can realize" to find appropriate solutions

④ General skills of problem solving

⑤ Mindset such as "Never give up," "Leadership/followership," "respecting teamwork," ---

Questions: What capacities you can add to the above? What do you think is the capacity which is the most difficult to obtain ? If you have some concrete example, please add it in your explanation.

2. Satellite development styles suitable for developing the required capacities

Questions: What kind of satellite development styles are good for obtaining the above capacities ? Reversely, what kind of satellite development style must not be conducted. If you have some good examples, please add them in your explanation.

3. Importance of Failures based training

Question: Failures are excellent training materials for students, but they should do "good" failures. What are <u>good failures</u> and what are <u>not good failures</u>? And <u>what students have to do when they experience failures</u> in order to make such failures excellent material for capacity development?

If you have some good examples of failures from which students can learn a lot, please add such examples.

4. Capacity building style suitable for universities

In most universities, students enter laboratory or department where they can participate in satellite projects, but after 2,3 years, they will graduate from universities.

Students are very busy, so it would be very difficult to find time and motivation to continuously focus on satellite development or capacity building.

And after you succeed in 1U or 3U CubeSat, you want to develop more sophisticated satellites, which will require more time and motivation for students.

Question: In your university, how you can solve this problem ? If you have some good ingenuity or tip to solve this problem, please share them with us.

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5. Role of community

Question: What is the role of university community for accelerating such capacity building? Please propose some good idea which university community such as UNISEC can follow.