

Building practical training in department of materials science and engineering through remote teaching

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After the first patient of COVID-19 in Japan was confirmed on January 16th, 2020, COVID-19 spread rapidly in our country. Therefore, a state of emergency was declared in big cities in Japan on April 7¹⁾. In April, Tokyo Institute of Technology prevented students from entering the campus, and regular face-to-face classes were no longer possible. Unlike lectures that can be given online, it was difficult for students to perform experiments in practical training. Here, we introduce the procedure of remote teaching in the Department of Materials Science and Engineering at Tokyo Institute of Technology.

First, Zoom, one of the applications of the web conferencing system, was used for practical training. Since it is impossible to experiment with groups of students, the faculty staff conducted the experiments and recorded the video (Fig. 1) of the experiments. The videos of experiments were shown on the “share screen” function. Then, the students were divided into individual groups in the rooms using the “breakout rooms” function, and staff visited the room during the discussion of the experiments.

According to the results of the questionnaire from the students, it is difficult to grasp the detail of the experiment because they did not work with their hands in the remote teaching. However, by providing the students with time to think into breakout rooms, new communications were initiated even though students did not have contact with each other on-campus. This had the secondary effect of building connections among the students.



Fig. 1 In the videos, the first- and third-person viewpoints were recorded so that both of the handling and operator were visible.

References

- 1) Kun, Q. Mentality and behavior in COVID-19 emergency status in Japan: Influence of personality, morality and ideology. *Plos One*, 15: 7 (2020).