

How to Teach for Future Talents

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Abstract

Future industry and society require new talents for creativity, problem definition and solving, critical thinking, synthesis and design, teamwork, communication, and so on. However, our standardized mass education system and one-way lecturing cannot meet such requirements. Although there have been numerous innovative pedagogies for fostering such futuristic talents, our classrooms and education have not changed significantly yet. Therefore, we need a simple and effective strategy for implementing various innovative pedagogies and transforming teaching and learning methods. We propose to simply eliminate lecturing from classrooms and maximize interaction and student participation by teamwork-based learning or any other innovative pedagogies in classes. Lectures can be delivered by e-learning. We introduce Education 4.0 Program and class examples at KAIST to implement such idea. KAIST has transformed almost 9% of classes and got positive feedback. We also introduce our experience of massive online learning due to COVID-19 and the future directions.

Biography

Tae-Eog Lee, joined Department of Industrial & Systems Engineering, KAIST in 1991 after his Ph.D. study at Ohio State University. He was Dean of KAIST Academy (Educational Transformation), Director of Center of Excellence in Learning and Teaching, and Dean of Library and Information Systems at KAIST. He has made efforts to transform conventional lecture-based learning & teaching into interactive and student-participative ones and disseminated the strategies and experiences through 140 keynotes or invited talks. The efforts were reported in Forbes, Nature, etc. He won ‘Grand Prize for LINKGENEIS Best Teacher’ for those contributions at KAIST in 2019. He is Chairman at Division of Policy Studies in The Korean Academy of Science and Technology (KAST). He was President of Korean Institute of Industrial Engineers (KIIE). His academic works on scheduling and control theory and application of discrete event dynamic systems and automated cluster tools for semiconductor manufacturing appear in IEEE Transactions on Automation Science and Engineering, and on Semiconductor Manufacturing, etc. He won “Award for The Month’s Scientist and Engineer” from Korea Research Foundation and Ministry of Science, ICT, and Future Planning in December 2015. He was an associate editor of IEEE Transactions on Automation Science and Engineering (2004~2008).