

CDIO 2016 KEYNOTE

Dr. Mark Somerville



Dr. Somerville is a Professor of Electrical Engineering and Physics, and Special Advisor to the Provost at Olin College. He joined Olin during the college's startup phase in 2001; at Olin he has played significant roles in the design of the college's curriculum, curriculum innovation structures, hiring strategy, faculty development, and faculty reappointment and promotion procedures.

Through Olin, Dr. Somerville has collaborated extensively with other institutions, including the University of Illinois at Urbana-Champaign, TU-Delft, University of Texas at El Paso, Purdue, INSPIRE, and others, to spread change in engineering education. He co-founded Big Beacon with Dr. David Goldberg, and has worked with Dr. Goldberg at institutions across the world.

Emotional Engineering: Going Beyond Curriculum in the Transformation of Engineering Education

The last two decades have seen enormous efforts around the world to transform engineering education. Most of these efforts have focused on two key components: curriculum and pedagogy. And they have made real change: CDIO, for example, has grown from a three school effort to more than 100 members today.

At the same time changing engineering education has also proven to be extraordinarily difficult and often, when change is made, it is not entirely clear that the benefits justify the costs. Part of the problem lies in our failure to focus on what and how we change in engineering education. In particular, if we are to help students develop into innovative, creative, and effective engineers who can thrive in the challenging times ahead, we must pay as much attention to culture and to values as to curriculum. As Charles Vest, former president of the US National Academy of Engineering put it, 'Making universities and engineering schools exciting, creative, adventurous, rigorous, demanding, and empowering milieus is more important than specifying curricular details.'

In this interactive talk, we will explore stories of change efforts in engineering education that have - by happenstance or mistake in some cases - highlighted the importance of broadening the definition of educational transformation to include emotional variables. Drawing on these experiences, we'll investigate ways to think about change in engineering education that can help to create the kinds of creative, joyful, and demanding environments we all aspire to as educators.