

# The George H. and Faye C. Sparks Forum in Ethics and Engineering

Louis L. Bucciarelli  
Massachusetts Institute of Technology

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4:00 p.m.

Student Success Center  
President's Suite B  
with a reception to follow



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## *Ethics and Engineering Education*

**Louis L. Bucciarelli** is a Professor of Engineering and Technology Studies, now emeritus, at MIT. Early on his engineering research concerned problems in structural mechanics - a subject he has taught at MIT in various varieties over the past 40 years. During the 80's, he worked at Lincoln Laboratory on the design and development of photovoltaic energy systems and developed an analytical method for estimating loss-of-load probabilities of stand-alone pv systems.

The product of his Technology Studies research includes a book in the History of Science: "*Sophie Germain: a Study in the History of the Theory of Elasticity*" (Reidel, 1980; co-author, Nancy Dworsky). More recently he has studied the engineering design process adopting the perspective and methods of an ethnographer. He is the author of *Designing Engineers* (MIT Press, 1994) and *Engineering Philosophy* (Delft University Press, 2003).

ABET recommends the study of ethics, so that students attain "an understanding of professional and ethical responsibility." How this is to be done is left to program faculty to decide and different programs include ethics in their curricula in different ways. The normal way of dealing with this "ethical constraint" in the design of engineering curricula – namely, require a course outside the department – may engender understanding of ethics but fail to convince students of its relevance to practice.

Given that engineers engage in both "object world" work and in the work of negotiation, dialogue, questioning, and proposing in their professional activities, how are ethical issues to be identified and addressed in practice? It turns out that posing ethical questions requires work, and that their "resolution" may never be forthcoming. How to prepare students for this complexity?

A renovation of the whole of the engineering program is required, not of the sort that adds and subtracts courses, but a renovation that integrates into the perspective of faculty and into the framing and content of core courses a respect for those dimensions and situations of engineering practice that resist reduction down into a problem to be solved.