

The Overlooked Role of Technology in the Sustainability Movement: A Pedagogical Framework for Engineering Education

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About the Webinar

Engineers today are increasingly asked to produce sustainable designs, products, and infrastructure. This begs the obvious questions: What is meant by sustainability and sustainable development, and what is the role of the engineer in this domain which increasingly pervades all facets of human endeavor? This webinar, meant to provide a pedagogical framework for engineering education, will make the case that sustainability and sustainable development should evolve beyond its environmental and social origins. As educators we should explicitly recognize the importance of technology in profoundly shaping the discourse and not simply view it as an enabler of meeting preset equipment and system performance targets. However, these targets are frequently difficult to determine, and therefore the second aspect covered in the webinar is the importance of metrics which are necessary for objective assessment of actionable design alternatives and for tracking the status of implemented measures. Three quantifiable umbrella capabilities of sustainability from a techno-centric viewpoint (functionality, resilience and longevity) are proposed, each with several specific sub-attributes. These can be characterized by direct or surrogate parameters/variables and performance measures/metrics. Some of the intrinsic limitations of combining these metrics are pointed out. Finally, the two prevalent sustainability assessment frameworks, namely, the structure-based and the performance-based, are discussed, and the need for a better synthesis is emphasized.

This webinar will be webcast live to a worldwide audience using Zoom.

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