

Guest Editorial

In order to satisfy the needs of a growing population that has ever-increasing demands in a world of finite resources and numerous societal concerns (e.g., economic, technological, and quality of life), sustainability principles and concepts are gaining ever-wider attention. Sustainability is often defined as “meeting the needs of the present without compromising the ability of future generations to meet their needs,” and recognizes the interdependence of three elements—economy, environment, and society. Engineers design and help realize the products, processes, and systems that meet society’s needs, and as we work toward a more sustainable society, it is critical that the work of engineers promote rather inhibit sustainability advancements. Engineers must have the knowledge to ensure that their contributions are consistent with the principles of sustainability. To prepare engineers for this challenge, engineering education must be infused with sustainability-related concepts, tools, and practices. Not only do engineers need to understand the environmental impact of their technological solutions, but also the social and economic implications of their engineering decisions.

This is the second of two issues focused on Sustainability in Engineering Education. The first issue emphasized the fundamental issues associated with integrating sustainability concepts in engineering education. The contributions to the first issue illuminated many of the general ideas and broader educational challenges that must be addressed. This issue concentrates on the application of sustainability concepts into courses, curricula, and class projects. The applications consider a variety of pedagogical techniques, technological tools, and areas of emphasis. The papers discuss course offerings ranging from interdisciplinary and graduate level classes to undergraduate instruction specializing on specific engineering disciplines including chemical, civil, environmental, and mechanical engineering. Many of the contributions have a developing world or international element. Collectively, the contributions to the issue demonstrate that engineering educators around the world are pursuing curricular innovations to enlighten students on sustainability principles and practices.

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