ADVANCING STANDARDS
TRANSFORMING MARKETS

Standards for Capstone Projects and Beyond

Capstone projects are required to incorporate relevant engineering design standards which define the constraints and boundaries already established by engineers and scientists in a specific sector. Standards also help students understand best practices, compliance criteria, testing methodologies, and more.

HOW STANDARDS ARE DEVELOPED

Many regions of the world have government bodies that set standards, but standards in places like the United States are developed primarily through industry associations, professional societies, and standards development organizations (SDOs). These standards are developed and used voluntarily until and unless governments cite them in regulations, or they are specified in a contract between buyer/seller. These standards are living documents, updated regularly to reflect current technology. Some standards are freely available to the public, while others are copyrighted and sold by organizations. Most organizations have programs to allow broader access for students and educators.

STANDARDS 101

Numerous types of standards exist. For example, specifications define a set of requirements to be satisfied by a material, product, system, or service. A specification often identifies the test methods necessary for determining whether a requirement is satisfied. A test method is a carefully written procedure that can help to determine specific properties of a material, such as permeability or adherence to a certain safety-related characteristic. Standard guides and practices provide information on a series of options and/or define instructions for one or more operations. A classification document provides a systematic arrangement of materials and products into groups and a terminology document provides definitions of common terms used in distinct industry sectors.

MAXIMIZED IMPACT

About 400 organizations in the U.S. develop technical standards and most have their own websites and search tools. However, within each industry sector, there are usually no more than two or three standards developers. The American National Standards Institute's database of global standards can be searched by keyword at webstore.ansi.org. ASTM International's standards can be found at www.astm.org.

> Students learn that using standards saves time, provides them with technically valid, industry-approved methods and allows for comparison between competitive products tested per the same standard, not only for their capstone projects, but also for projects they will work on in industry.
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> — **Jay R. Goldberg,** professor, Marquette University and Medical College of Wisconsin