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From the Editor

This issue includes four papers that are all focused on undergraduate education. Collectively, they demonstrate breadth in educational innovations.

Merrett presents the outcomes from evaluating a classroom approach that combined flipped classroom instruction, case-based learning in an active classroom, and authentic assessments to expose students to open-ended, complex design challenges. The context was a second-year introduction to engineering materials course and the implementation was iterative from 2012–2016. Merrett argues that this pedagogical configuration exhibits improved alignment with the practical learning outcomes associated with engineering materials such as material selection, failure, and heat treatments.

Osgood, MacIntyre, and Pollard-Feehan describe an engineering success center that was formed with the long-term goals of providing first-year support, increasing retention, and developing leaders. A novel aspect to this work is that priorities and activities were defined by the students who were employed to run it using a shared leadership model. Shared ownership is further exemplified in the manuscript itself as it was written by two of the student leaders with the faculty coordinator.

Dalton and Estrada describe the implementation of a group mindfulness activity for undergraduate engineering students. Results show benefits to students including an increase in trait mindfulness and weekly mindfulness practice, and lower perceived stress. The format of the sessions was also well-received and positively rated by participants.

Ford, Fatehiboroujeni, Fisher, Ritz describe a hands-on, guided-inquiry materials laboratory that supports student agency. The context of this educational innovation is a scaffolded series of remote lab activities for an upper-division mechanics of materials course, culminating in a collaborative guided-inquiry experiment design challenge. The authors identified 25 unique approaches to the design challenge within 36 lab reports and the post-lab survey demonstrated an increase in self-efficacy for the primary targeted skills (designing experiments and making predictions).