

# Newly published paper seeks to improve global engineering curriculum

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A new publication headed by the University of Colorado at Boulder (CU Boulder) Mortenson Center in Global Engineering seeks to create better alignment among academic programs and sector needs when it comes to

training engineers in global development.

The publication comes after the center hosted over 100 participants from universities, donors, government agencies and industry partners for a virtual workshop series as part of a National Science Foundation grant to advance engineering [education](#). Together, that group established a comprehensive global engineering body of knowledge that was recently published in *Development Engineering*.

CU Boulder authors on the report come from the Mortenson Center, the Environmental Engineering Program, and the Department of Civil, Environmental and Architectural Engineering.

Mortenson Center Managing Director Laura MacDonald is the first author on the report. She said it is intended to support and provide consistency to graduate programs across the country as they prepare and educate the next generation of global engineers.

"What we present in the paper ensures that global engineers have the technical skills they need to succeed, but also the transversal and interdisciplinary skills that are required to work across sectors, with the ultimate goal being global poverty reduction," she said. "We worked with a broad set of stakeholders, and the resulting paper reflects the breadth and depth of expertise we drew from to create the body of knowledge."

MacDonald added that the biggest takeaway from the report is that a traditional engineering education is necessary, but not sufficient, for equipping engineers to work effectively in a [context](#) that is heavily influenced by historical, economic, and geopolitical factors.

"The role of engineers must evolve and account for structural and systemic barriers to global development and equity. Engineering

education must change to support this evolution," she said.

Associate Professor Evan Thomas is the second author on the publication and the director of the Mortenson Center. He said this type of collaborative effort builds on the center's history of leadership in the field and as an inter-institution and interdisciplinary hub for groundbreaking research and foundational work.

"The Mortenson Center is uniquely positioned to facilitate this work because of our long history in global engineering graduate education and our ability to incorporate new approaches and perspectives," he said. "Our faculty and staff are practitioners with personal experience. That fact ensures our results are both practical and applicable outside of [academia](#)."

MacDonald said the team of contributors is already circulating the report for feedback and plans to have another event soon to continue engaging with workshop participants and their networks on these topics. She added that while the emphasis of this research was on international development, the Mortenson Center is increasingly focused on the need for similar efforts domestically to address inequitable access to basic services and to work toward climate resilience in the United States, especially in underserved communities.

"We're seeing more students entering our program who want to engage in domestic work and improve the livelihoods of people in the United States. I anticipate that the global engineering [curriculum](#) we've developed will increasingly be applied in domestic contexts," she said.

**More information:** Laura MacDonald et al, Aligning learning objectives and approaches in global engineering graduate programs: Review and recommendations by an interdisciplinary working group, *Development Engineering* (2022). [DOI: 10.1016/j.deveng.2022.100095](https://doi.org/10.1016/j.deveng.2022.100095)

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