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A Blueprint for an Ecosystem for Supporting High Quality Education for Engineering

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Abstract

This paper presents the idea and a proposed implementation of a network of Gurukuls or Centers of Excellence for engineering education in India. Facilitated by Indo Universal Collaboration for Engineering Education (IUCEE) in partnership with institutions in India, the IUCEE Gurukuls for Learning and Outcomes Based Education (gLOBE) program addresses a vital need for institutions to develop self-reliance towards achieving excellence in engineering education. The primary role of the Gurukul in an institution is to provide an ecosystem for faculty development in a manner that will directly contribute to enhance students’ learning experience. The mission of the Gurukul is to guide and mentor its faculty in improving their teaching and learning methods, in implementing outcomes based education and in conducting engineering education research.

There is a large body of literature available on effective teaching and learning through engineering education conference proceedings and journals, and in wider outlets. However, one of the key observations over the last two decades is that adoption of research based instructional techniques into engineering classrooms is extremely low. We believe that the main reason for such non-adoption is that potential adopters are unable to contextualize the pedagogical research.

The paper lays out a vision for a network of discipline-based education researchers to contextualize and coordinate efforts between the Gurukuls and participants/practitioners. The paper considers lessons learned and best practices from efforts in the United States and lays out a blueprint for catalyzing high quality instruction in engineering colleges in India.

Keywords
Centers of Excellence, Discipline Based Education Research, Translation of Research Based Pedagogies to Classroom, Indian Engineering Colleges, Gurukuls.

Full Text:

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from research organizations. Agricultural intensification not a 'blueprint' for sustainable development. Date: June 14, 2018. Publishing their findings in Nature Sustainability, the authors argue that intensification cannot be considered as a simple "blueprint" for achieving positive social-ecological outcomes. While there is considerable hope and expectation that agricultural intensification can contribute to sustainable development, they find that only a minority of existing studies present evidence for this and that even these infrequent 'win-win' cases tend to lack evidence of effects on key regulating or supporting ecosystem services, such as moderating river flow or cycling soil nutrients.