

## **The Greenfield Coalition: Lessons Learned**

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The Greenfield Coalition at Focus:HOPE is a coalition of five universities, seven manufacturing companies, the Society of Manufacturing Engineers, and Focus:HOPE. (a civil rights organization dedicated to intelligent and practical action to overcome racism, poverty and injustice in Detroit and its suburbs). Funded under the Engineering Education Coalitions Program at NSF, Greenfield has established a new paradigm in manufacturing engineering education leading to degrees in both Manufacturing Engineering and Manufacturing Engineering Technology.

The impetus for the Greenfield project was the sense that most academic studies in manufacturing engineering were devoid of real manufacturing experiences. By integrating actual manufacturing experiences into the academic program and expanding learning with web-based tools, Greenfield is reinvigorating manufacturing education and through Focus: Hope's Center for Advanced Technologies, delivering it to a student body which is 95 percent underrepresented minorities.

Greenfield's approach is founded on a set of beliefs about learning. These beliefs have led Greenfield to develop three strategies which frame learning in a Greenfield course and set the stage for the development of resources to support learning:

- Greenfield frames learning using real-world manufacturing experiences.
- The design of Greenfield products motivates learning and supports an active and cooperative environment aimed at enhancing understanding
- Technology supports collaborative development, an ability to reuse and repackage learning, and enables widespread dissemination.

Thus, the Greenfield approach aims to change the cultural fabric of engineering education. One of the biggest impacts of the Greenfield course development experience is the enhancement of the quality of the courses and the way they are presented. This paper describes Greenfield's ambitions, what it has been able to achieve and provides lessons learned from this educational experiment, including the emergence of a new methodology of teaching engineering education and the impact of courses on various universities. This methodology addresses critical development issues and seeks to integrate new technology, such as web-based learning into the students' curriculum.