

## Freshman Design Projects: Lessons Learned in Engineering Coalitions

*Dhushy Sathianathan (ECSEL), Sheri Sheppard (Synthesis),  
Roland Jenison (Synthesis), Nihat Bilgutay (Gateway),  
John Demel (Gateway), Prasad Gavankar (Foundation),  
Jeff Lockledge (Greenfield), Raj Mutharasan (Gateway),  
Howard Phillips (Succeed), Corrado Poli (Academy),  
and Jim Richardson (Foundation),*

**Abstract** - NSF established the Engineering Education Coalition programs for the purpose of creating systemic changes in engineering education. Coalitions are groups of institutions of higher learning who work collaboratively to achieve their coalition's mission. The first Coalition program was established in 1990. There are now eight Engineering Education Coalitions representing some 59 Universities (roughly 20% of all of the undergraduate institutions in the United States).

Most coalitions have developed freshman design projects to increase the interest of new engineering students and to begin the integration of design across the curriculum. These activities are multi-week project approach, where students are engaged in hands-on experimental learning. The projects require that the

members of the team must work together to complete the task. The multi-week projects dominate the course and the project theme motivates both the fixed and the flexible content covered during the course.

This special session will discuss the various types of freshman design projects used and lessons learned by the Engineering Coalitions. Short presentations from the various coalitions will review what has been done and the lessons learned. The sessions will be interactive, involving the audience in the discussion of these lessons learned. A list of projects used in the coalitions along with a list of publications will be made available.