

PROJECT SUMMARY

Strengthening HBCU Engineering Education Research Capacity (HRD- 0411994)

General Summary

Through the cooperation and engagement of the Council of HBCU Engineering School Deans, the Center for the Advancement of Scholarship on Engineering Education (CASEE) of the National Academy of Engineering (NAE) proposes to annually identify 3-person teams (drawn from engineering and social science faculty) from each of 10 HBCUs to engage in an intensive program aimed at developing or enhancing capacity to engage in rigorous research on engineering education—research that links expertise in engineering content with the theory and methodological base of social science disciplines. Over a three-year period, the 99 (9 per campus) participants will achieve critical mass both nationally and on their individual campuses. Additionally, they will have made useful and productive connections outside the HBCU community. This effort will provide a model for efforts in other disciplinary communities and in other groups of institutions.

The 3-person teams will engage in 7 activities:

1. In June 2004, an orientation meeting of HBCU Deans with prominent engineering education researchers and social scientists to discuss challenges and opportunities in engineering education on HBCU campuses.
2. By July 2004, participating HBCU engineering deans will identify 3-person teams drawn from engineering and social science faculty on their campuses to lead research and innovation activities (e.g., an engineering department head, an engineering faculty member, and a social science faculty member).
3. The three-person teams will attend an intensive one-week training session offered by the Colorado School of Mines in August 2004.
4. The three-person teams will attend a Project Kaleidoscope Annual meeting, held in October 2004, to develop campus research and implementation strategies.
5. The three-person team will attend the October 20 CASEE Annual meeting to be held in conjunction with the Frontiers in Education conference (sponsored by the Education Research and Methods Division of ASEE, the IEEE Education Society, and the IEEE Computer Society).
6. By January, the HBCU campuses will submit requests to support engineering education research activities on their campuses to grant programs that may include a variety of sources including the National Science Foundation (e.g., CCLI-ASA, CLT, ROLE, SLC, STEM-Type 2, etc.), private foundations (e.g., the Spencer Foundation, and the McDonnell Foundation, and the Lumina Foundation), and corporate sources (e.g., the ExxonMobil Foundation).
7. Steps 2 through 7 will be repeated in years 2 and 3.

Intellectual Merit: This effort builds knowledge within HBCU engineering and social science faculty on the conduct, evaluation, and communication of rigorous education research within engineering disciplines. An outcome of this activity will be the development of HBCU campus plans to strengthen curricula and pedagogy at HBCU institutions. It strengthens connections among leadership faculty at HBCUs and enhances linkages with national leaders in engineering education research and practice.

Broader Impacts: This effort will enhance linkages between the engineering and social science communities at HBCUs, improve the quality of education within HBCUs engineering programs, provide HBCU faculty with an opportunity to assume leadership in the emerging area of education research, and enhance the cadre of social science professionals experienced in addressing challenges in engineering education. This project contributes to the intellectual infrastructure that will enhance attainment of national human resource development goals.