Project Title: Workshop: Creating and Sustaining Dialogs on Conceptual Change in Engineering Education

Principle Investigator: Dr. Richard A. Cheville, Professor of Electrical Engineering

Funding Agency: National Science Foundation (NSF)

Award Amount: $47,550

Award Period: 2014-2016

With this NSF award, Dr. Cheville will organize and Chair a workshop that promotes a continuing dialog on why we educate engineers, as well as how that education is to be developed. To catalyze this ongoing dialog on the purpose of engineering education, the award supports two consecutive workshops integrated with a deep and meaningful dissemination effort. The two funded workshops are intended to promote a dialog about the larger purposes of engineering education in the context of diverse stakeholder attitudes and values.

The claim underlying these workshops is that there have been significant enough changes in the workforce structure, the life period of work, and technology that the time has come to re-conceptualize higher education and, within the higher education system, engineering education. The project plan for these workshops carefully builds on an existing national conference to ensure maximum participation and impact. The workshops are framed around an existing professional society structure to ensure broad and diverse participation. In this manner, these NSF-funded workshops are intended to open up a new venue for dialog that captures a broader range of voices in the field of engineering education.

The proposed workshops will help to advance knowledge and understanding about the purposes of engineering education and begin a meaningful and lasting dialog on possible ways to re-conceptualize engineering education. The proposed workshops and dissemination effort explore creative and original ideas since, as outlined in the proposal body, sustained dialog is needed to sustain change if major, possibly paradigm-shifting, changes are taking place in higher education and engineering education. The claim underlying this workshop is that there have been significant enough changes in the workforce structure, the life period of work, and technology that the time has come to re-conceptualize higher education and, within the higher education system, engineering education. Reconceptualization implies radical change, and radical changes as compared to the step-by-step improvements that are mostly undertaken are very difficult to bring about. To sustain the needed on-going dialog, the proposed workshop offers a well-organized plan based on a sound rationale for catalyzing meaningful discussion. Project evaluation is actionable, addresses short- and long-term outcomes, and is aligned to the major workshop goals. The workshop is framed around an existing professional society structure to ensure broad and diverse participation. Leaders of three divisions will coordinate the workshop.
The project plan carefully builds on an existing national conference to ensure maximum participation and impact from the requested resources.

**Broader Impacts:**
The proposed workshops and significant dissemination effort can broadly impact society by creating a scholarly and sustainable dialog between multiple stakeholders in engineering education. As outlined in the proposal, the larger purposes of engineering education are generally dominated by majority views. The proposed workshops are intended to open up a new venue for dialog that captures a broader range of voices. The project plan carefully considers participation of the needed diverse elements of the larger engineering education system. The plan outlined in the proposal provides resources for long-term, sustainable dissemination that extends beyond the duration of the award. These plans are clearly articulated in the proposal and resources are requested to help ensure the success of the broad dissemination efforts.

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