

The Education-Engineering Collaborative at Virginia Tech

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For the past two years faculty from the Virginia Tech College of Engineering and School of Education have collaborated extensively on educational research projects and curricular developments. These efforts have led to a number of significant developments at Virginia Tech and have initiated conversations that have begun to have effects on preparation of public school teachers.

The initial outcome was obtaining several funded research projects that are currently having significant effects on the curricula in the College of Engineering. These effects are primarily in the common freshman year at this point and include the use of electronic portfolios, scientific assessment of student opinions and outcomes, and bringing contemporary educational theory into practice in the classroom.

One of the outcomes of the initial research project was the creation of a Masters/Licensure program. This program allows students with degrees in engineering, industrial design, or physics to obtain a masters degree and concurrent public school licensure in Virginia.

A graduate program in engineering education has been started. To date, four courses have been taught with a combined enrollment of approximately 50 students. The courses are "Preparing for the Engineering Professoriate," "Teaching Engineering Design," "Teaching Engineering," and "Engineering Education Practicum." While most of the students have been from engineering, several students from the School of Education have participated as well. Student feedback has been overwhelmingly positive. We have created a Certificate in Engineering Education, designed to be earned by a student in another graduate program. The Certificate requires approximately four courses in education topics, taken from Engineering and/or Education. We have also designed courses in fundamental engineering topics for delivery to non-engineers so that we can begin to spread information on the nature and the culture of engineering into the public schools. Our course "History, Theory, and Practice of Engineering" has not been offered yet, but we believe it will find a wide audience among public school teachers who are either interested in or being encouraged to teach pre-engineering courses to younger students. We have developed draft requirements for masters and doctoral degrees. These degrees will be research intensive degrees, preparing the graduates to serve in all levels of education, including administration and policy.

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