

Educating Tomorrow's Engineers Act "ETEA"

Engineering education is not just for students interested in pursuing a career requiring an engineering background – engineering helps all students understand the world around us and how things work.

Despite the importance of engineering, most students in the United States have never experienced an engineering course or lesson and a vast majority of schools do not offer these opportunities. Fortunately, a growing number of states, schools and teachers are recognizing the importance of engineering design and problem-solving skill sets and have begun to integrate these concepts into their classrooms.

The ETEA bill is designed to help encourage all states to follow this path and to remove barriers at the federal level so that K-12 engineering education can be adopted more broadly.

ETEA will not only expose far more students to engineering it will also play a significant role in expanding the pipeline to meet future STEM workforce needs.

To accomplish these goals, the ETEA proposes to build upon existing federal education policy in several key areas:

Expands Student Exposure to Engineering Design Skills:

- The current federal rules under the Elementary and Secondary Education Act (ESEA) require states to develop "science" standards, but they are often perceived as being related to simply the traditional areas of science – as a result, engineering is rarely a component of these standards.
- ETEA would require states to ensure engineering design skills and practices are integrated into their science standards – but would NOT require states to establish a separate set of standards specifically for engineering.
- ETEA also provides flexibility to states to enable the use of current State Assessment Grants under ESEA to support the integration of engineering concepts into science standards and assessments.

Provides Instructors Tools and Support to Effectively Teach Engineering:

- Many schools already face shortages of math and science teachers, and these teachers often have little background in how to teach engineering design skills, nor is there extensive curriculum available to help support the teaching of these skills.

- ETEA addresses these issues by targeting a portion of current Title II funds under ESEA (Teacher and Principal Training and Recruitment Fund) for states to award grants to support professional development and instructional materials for STEM education.

Enables Schools to Target More Resources Toward Engineering Education:

- Schools seeking to expand engineering education find that key federal education programs limit their ability to use funds for such purpose.
- ETEA addresses this issue by clarifying the ability for these funds to be used to support engineering education. Specifically, ETEA amends the current Math and Science Partnership (MSP) program by expanding the program to all STEM subjects, including engineering and computer science.
- Similarly, ETEA amends the 21st Century Learning Centers program (providing funds for after school activities) and the Rural and Low-Income School program by expanding uses of funds to support programs for all STEM subjects.

Promotes Federal Research in the Area of Engineering Education:

- The Department of Education's Institute of Education Sciences (IES) is tasked with funding a wide variety of education research, including extensive work in the areas of mathematics and science education. However, the agency does little work in the area of engineering education, in part due to the current law establishing IES.
- ETEA amends the Education Science Reform Act of 2002 to expand the mission and duties of IES beyond mathematics and sciences and for the first time, to include all STEM subject areas.
- ETEA also directs IES to specifically support key studies and evaluations related to K-12 engineering education, including identifying best practices and promising innovations.