

## 2011 SESSION

ENROLLED

### SENATE JOINT RESOLUTION NO. 308

*Requesting the Department of Education to establish shared goals for an engineering program of study, and assign a shared responsibility for this program between the existing science, mathematics, and technology disciplines. Report.*

Agreed to by the Senate, February 2, 2011

Agreed to by the House of Delegates, February 22, 2011

WHEREAS, STEM is the acronym used in K-12 education for Science, Technology, Engineering, and Mathematics; and

WHEREAS, each component of STEM differs from the others in subtle but important ways; and

WHEREAS, science is concerned with the discovery of the laws by which nature works—the discovery of the natural world; and

WHEREAS, mathematics is concerned with the study of patterns and relationships among quantities, numbers, and shapes; and

WHEREAS, technology education is concerned with the modification of the natural environment in order to satisfy human needs and wants; and

WHEREAS, engineering is concerned with the creation of the human-designed world—the purposeful shaping of science and technology to meet societal needs; and

WHEREAS, innovation, critical thinking, and problem solving are highly desired twenty-first-century capabilities in the Commonwealth and the nation; and

WHEREAS, innovation is born directly of engineering rather than science and mathematics; and

WHEREAS, the engineering design process differs from the scientific method; and

WHEREAS, engineering design leads to the manufacture or fabrication of a product that meets design requirements and constraints; and

WHEREAS, engineering teachers require a significant background in the engineering design process and the manufacture to specifications process as well as science, mathematics, and technology education; and

WHEREAS, mastery in the engineering design process or manufacture to specifications process is not required of science and mathematics teachers; and

WHEREAS, mastery in science and mathematics is not required of technology education teachers; and

WHEREAS, a robust K-12 STEM education will lead students to successful transition to higher education in engineering; now, therefore, be it

RESOLVED by the Senate, the House of Delegates concurring, That the Department of Education be requested to establish shared goals for an engineering program of study, and assign a shared responsibility for this program between the existing science, mathematics, and technology disciplines; and, be it

RESOLVED FURTHER, That K-12 engineering not be subsumed by just one curriculum domain, but only taught in conjunction with science, mathematics, and technology education by teachers with appropriate training in the engineering design process, the scientific method, science, and manufacture to specifications and constraints.

The Department of Education shall submit to the Division of Legislative Automated Systems an executive summary and report of its progress in meeting the directives of this resolution no later than the first day of the 2012 Regular Session of the General Assembly. The executive summary and report shall be submitted as provided in the procedures of the Division of Legislative Automated Systems for the processing of legislative documents and reports and shall be posted on the General Assembly's website.

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