Support of HB 2292 and Reconsideration of COMMON CORE OF KANSAS –MATHEMATICS

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ASSERTION: SUPPORT HB 2292. IF KANSAS WERE TO ADOPT THE NATIONAL COMMON CORE IN MATHEMATICS, THEN THE OUTCOME WOULD BE THAT MANY STUDENTS IN KS WOULD NOT BE READY TO ENTER (1) COLLEGE AND UNIVERSITY LEVEL PROGRAMS IN ENGINEERING AND SCIENCE NOR BE READY ENTER TO (2) ENTER KANSAS JOBS REQUIRING PROBLEM SOLVING AND APPLICATIONS IN AREAS SUCH AS TECHNOLOGY, ENGINEERING OR SCIENCE.

FURTHER RELEVANT SUPPORTING INFORMATION.

OUTLINE

I. BACKGROUND – PROFESSOR RINE

- Nearly 50 Years in Teaching and Practicing Applied Mathematics
- Last 45 Year in Teaching and Practicing Engineering and Computer Science
- National Curricula Development and National Advanced Placements Development

II. HISTORY AWARENESS OF MATHEMATICS CURRICULA DEVELOPMENT

- State of Illinois: 1945 - 1965
- Commonwealth of Virginia: 1985 - present

III. MATHEMATICS FOR ENGINEERS, SCIENTISTS AND BUSINESS AND WEAKNESS AREAS IN THE Federal COMMON CORE

- Information and Data Representations: Discrete Mathematics
- Algorithms and Numerical Procedures: Numerical and Non-numerical Algorithms
- Applied Statistics and Probabilities
- Problem Solving: Communicated in Writing, Speaking and Visualization

- Accreditation Board for Engineering and Technology (ABET) Accreditation and Professional Outcomes-based Assessments

Iς. COMMON CORES: NATIONAL DEPT. of ED. CC VERSUS A KANSAS CC

- Financial Impacts and Risks
- Use of State-based Math Subject Matter Specialists: Teachers, Professor and Professionals

ς. ADVANTAGES AND DISADVANTAGES

- Kansas Access to the Use of State-based Math Subject Matter Specialists
- Kansas Based Budgetary and Financial Controls
- Known Risks in Relying on Fed. DoE and DoHHS in Washington
- Weaknesses of Federal Common Core in Mathematics (See Section III Above)

PROPOSED GENERAL CURRICULUM CRITERIA AND RATIONALE

The Kansas curriculum requirements should specify subject areas appropriate to engineering but do not prescribe specific courses. The school faculty must ensure that the program curriculum devotes adequate attention and time to each component, consistent with the outcomes and objectives of the school program and district. The professional ready component must include:

(a) preparation for one year of a combination of college level mathematics and basic sciences (some with experimental experience) appropriate to the discipline. Basic sciences are defined as biological, chemical, and physical sciences.

(b) preparation for one and one-half years of engineering topics, consisting of engineering sciences and engineering design appropriate to the student's field of study. The engineering sciences have their roots in mathematics and basic sciences but carry knowledge further toward creative application. These studies provide a bridge between mathematics and basic sciences on the one hand and engineering practice on the other. Engineering design is the process of devising a system, component, or process to meet desired needs. It is a decision-making process (often iterative), in which the basic sciences, mathematics, and the engineering sciences are applied to convert resources optimally to meet these stated needs.

(c) preparation for a general education component that complements the technical content of the curriculum and is consistent with the program and institution objectives.

School students must be prepared for the immediate application of mathematics for problem solving in technology engineering practice through a curriculum culminating real world problem solving and in a

major design experience based on the knowledge and skills acquired in earlier course work and incorporating appropriate engineering standards and multiple realistic constraints.

PROPOSED GENERAL CRITERIA AND ASSESSMENT OF STUDENT OUTCOMES

- The school program must have documented student outcomes that prepare school graduates to attain the program educational objectives.
- School student outcomes are outcomes (a) through (k) plus any additional outcomes that may be articulated by the program.
- Immediate Outcome (a) : an ability to apply knowledge of mathematics, science, and engineering to real world problems, and the following preparatory outcomes:

  (b) preparation for an ability to design and conduct experiments, as well as to analyze and interpret data

  (c) preparation for an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability

  (d) preparation for an ability to function on multidisciplinary teams

  (e) preparation for an ability to identify, formulate, and solve engineering problems

  (f) preparation for an understanding of professional and ethical responsibility

  (g) preparation for an ability to communicate effectively

  (h) preparation for the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context

  (i) preparation for a recognition of the need for, and an ability to engage in life-long learning

  (j) preparation for a knowledge of contemporary issues

  (k) preparation for an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

ADDITIONAL LINKS:

http://www.kslegislature.org/li/b2015_16/measures/documents/hb2292_00_0000.pdf
http://whatiscommoncore.wordpress.com/tag/reject-common-core/
http://truthinamericaneducation.com/uncategorized/jay-matthews-joins-growing-anti-common-core-crusade-2/
http://heav.org/va-law/common-core-part-two/
http://www.schoolimprovement.com/common-core-360/blog/Virginia-and-the-Common-Core-Standards/