In 2006, the US National Academies issued a warning about the decline of STEM (science, technology, engineering, and mathematics) education in America and recommended a number of actions. One of their top recommendations was to grow the pipeline of students preparing to enter college and graduate with STEM degrees.

Northern Virginia faces a critical shortage of scientists, engineers and technicians. The National Research Council and the National Science Foundation have identified the core underpinnings of a competitive economy as being the fields of STEM.

In response, Northern Virginia Community College (NOVA) has been working with area corporations and with the school divisions in Prince William County, Manassas, and Manassas Park to develop a strategy for growing the STEM pipeline from high school, to NOVA, to George Mason University, and into the workforce.

SySTEMic Solutions programs currently in place:

- Professional development opportunities for teachers of STEM curriculums;
- Dual enrollment courses with a STEM focus in all three school districts;
- Expanded regional employment opportunities in the STEM fields;
- Part-time employment and internship opportunities for students in STEM programs;
- STEM-focused activities/camps that stimulate student interest and awareness in advanced technologies;
- Pathway to the Baccalaureate Program activities and student support services;
- Aligned secondary to post-secondary STEM curriculum and program offerings;
- Expanded robotics programs at elementary (FIRST Lego), middle (VEX), and high school (FIRST, VEX and SeaPerch);
- Support through Industry Partnerships including Micron Technology, Aerojet Corporation, BAE Systems, PTC Inc., Insystech, Computer Sciences Corporation, and Lockheed Martin allows SySTEMic Solutions to provide ever-expanding internship opportunities, professional mentors and career exploration activities.

Prince William, Manassas and Manassas Park students in the STEM pipeline:

- Presently there are over 1,000 students in the STEM pipeline; 300 in the middle schools; 480 in the high schools; and 316 enrolled at NOVA.
- In 2013, it is projected over 1,550 students will be in the STEM pipeline; 350 in the middle schools; 550 in the high schools; and 660 enrolled at NOVA.
- By 2015, it is projected nearly 3,000 students will be in the pipeline; 500 in the middle schools; 575 in the high schools; 1,607 enrolled at NOVA, 545 enrolled at GMU and 200 GMU students will graduate annually.

“Through SySTEMic Solutions, NOVA has created a collaborative arrangement among school divisions, higher education institutions, and corporations to create a sustainable workforce pipeline in the Prince William region that by the year 2015 will have nearly 3,000 students preparing for STEM careers.”

– Amy Harris, Director, SySTEMic Solutions