# Science, Technology, Engineering & Mathematics Cluster

**Engineering & Technology Pathway –**

**Pre-Engineering Mechanical –** Students in this major will study pre-engineering through Project-Lead-the-Way curriculum that will introduce them to the concepts and principles of engineering and there will be a strong emphasis on developing problem solving skills. They will learn how engineers use math, science and technology to solve problems. Students in this major will also complete a course on computer integrated manufacturing which will focus on the fundamental concepts of robotics used in automated manufacturing and design analysis. Students will also complete advanced math and science courses, including physics and calculus, which will prepare them to advance to the college or university level.

**Pre-Engineering Civil & Architecture –** Students in this major will study pre-engineering through Project-Lead-the-Way curriculum that will introduce them to the concepts and principles of engineering and there will be a strong emphasis on developing problem solving skills. They will learn how engineers use math, science and technology to solve problems. Students in this major will also complete a course that will focus on civil and architecture engineering that will focus on project planning, site planning, and building design. Students will also complete advanced math and science courses, including physics and calculus, which will prepare them to advance to the college or university level.

**Pre-Engineering Biotech –** Students in this major will study pre-engineering through Project-Lead-the-Way curriculum that will introduce them to the concepts and principles of engineering and there will be a strong emphasis on developing problem solving skills. They will learn how engineers use math, science and technology to solve problems. Students in this major will also complete a course that will focus in biotechnology in which students will complete projects in the fields of bio-technology, bio-engineering, bio-medical engineering and bio-molecular engineering. Students will also complete advanced math and science courses, including physics and calculus, which will prepare them to advance to the college or university level.

**Pre-Engineering Aerospace –** Students in this major will study pre-engineering through Project-Lead-the-Way curriculum that will introduce them to the concepts and principles of engineering and there will be a strong emphasis on developing problem solving skills. They will learn how engineers use math, science and technology to solve problems. Students in this major will also complete a course on aerospace engineering in which the students will study astronautics, space-life sciences, and systems engineering (which includes the study of intelligent vehicles like the Mars rovers Spirit and Opportunity) and complete projects developed with NASA. Students will also complete advanced math and science courses, including physics and calculus, which will prepare them to advance to the college or university level.

**Electronics Technician –** Learn to install, maintain and repair electronic circuits and equipment. Through a series of practical hands-on experiments, students will learn the correct use of safety procedures, tools, test equipment, troubleshooting procedures and soldering techniques, as supported by the theoretical components of electronics training. Students are expected to achieve a level of training sufficient for entry-level employment within the specific electronics

area of their choosing, such as general electronics equipment servicing, aircraft electronic instrumentation installation and servicing, bio-medical electronic equipment installation and servicing, audio electronic equipment installation and servicing, communications/navigation equipment installation and servicing, and automotive electronics servicing.