



HARRISON COUNTY SCHOOLS

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Dr. Mark A. Manchin
Superintendent

June 7, 2019

Dear Parent/Guardian:

As the close of the 2018-2019 school year and the promise of a nearly three-month long summer break for students and teachers are upon us, I wanted to personally reach out to families to make you aware of exciting plans that are underway in our high schools for students in grades 9-12. As you may have heard in local media and publications, Harrison County Schools is entering Phase 1 of a series of unique partnerships with local industry. The first of these programs, the Aerospace Program of Study, will be introduced for Fall 2019. The courses are open to all Harrison County students, grades 9-12, and will be housed at Bridgeport High School. A similar opportunity for county high school students currently exists for those interested in the JROTC program that is housed at Robert C. Byrd High School. I know you share in our vision that each student who graduates from Harrison County Schools will be college or career ready. It is my goal that each of our graduates will not only earn a high school diploma but a certification, credential, and/or hours toward a degree at a post-secondary institution.

With this in mind, I encourage you to reach out to your school's administration or counselor prior to August to become more aware of the career technical education opportunities that exist within each of our Harrison County high schools and the United Technical Center. There are many careers available in North Central West Virginia now and in the very near future in the aerospace, biometrics, information systems, and energy industries.

The aerospace program, housed at Bridgeport High School beginning Fall 2019, is just the first of the exciting partnerships that Harrison County Schools will begin for our students in these industries. There are four aerospace courses that will appeal to students who are curious about the design and flight of aircraft and spacecraft vehicles. The courses are taken in the order below. It is recommended that all students who are interested in any area of the aerospace industry take a minimum of courses 1 and 2. We encourage all to pursue a pathway right for their future career desires after the second course. The complete course descriptions are available at your child's school or on the back of this letter.

- Course 1: Fundamentals of Aerospace Technology
- Course 2: Advanced Aerospace Technology
- Course 3: Aeronautics Engineering Applications
- Course 4: Astronautics Engineering Applications

Working together with you, it is my goal that all students will become more aware of the opportunities in our schools and the viable career opportunities available in North Central West Virginia right now.

Sincerely,

Dr. Mark A. Manchin
Superintendent

Advanced Career Aerospace Engineering Curriculum

Aerospace Engineering will appeal to students who are curious about the design and flight of aircraft and spacecraft vehicles.

Course 1: Fundamentals of Aerospace Technology

This project-based learning course engages students who are curious about aviation and aerospace careers. This course will introduce students to an engineering design process, tools to collect and analyze data, the science of aviation, materials and structures, and safety. Students will participate in real-world experiences such as designing, building and testing a pilot seat, kite, straw rocket and launcher, motor-powered rocket and a model glider.

Course 2: Advanced Aerospace Technology

This course builds on the foundation of Course 1 and engages students in applying the design process, using tools to collect and analyze data, exploring a deeper level of the science of aviation and discovering how quality control systems work in the aviation field. Students will work collaboratively in teams to design, build and test a wing; plot a course for a plane to take off and land; design, build and test a wing attachment system; test materials under stress; and design, build and test an electric-powered plane. Students will demonstrate their newly acquired knowledge and skills by presenting their innovative ideas, techniques and solutions to business and industry partners.

Course 3: Aeronautics Engineering Applications

This project-based learning course is for students who have successfully completed Courses 1 and 2. Students will learn about systems such as flight control, remote-control vehicles and the virtual world. Students will learn to fly using flight simulators. They will work collaboratively to propose a shift from a VOR navigation system to a GPS system and determine the cost savings. In addition, students will develop rotor blades for helicopters and design and program an unmanned flying vehicle.

Course 4: Astronautics Engineering Applications

Students in this capstone course will focus on outer space and underwater applications. During the six projects, they will work collaboratively to design, build and test a laser communication system; develop a plan for space survivability in hostile environments; and utilize software to create a three-dimensional model of a satellite orbit and a team remote vehicle for underwater exploration. Depending on articulation agreements or state policy, students who successfully complete the course may be able to earn dual credit.

1 <https://www.asme.org/engineering-topics/articles/aerospace-defense/top-5-aerospace-trends-now-future>. American Society of Mechanical Engineers. Retrieved November 22, 2013.

2 <http://www.dailymail.co.uk/sciencetech/article-2185304/NASA-Boeing-successfully-test-triangle-airplane.html>. Daily Mail Online. Retrieved November 22, 2013.