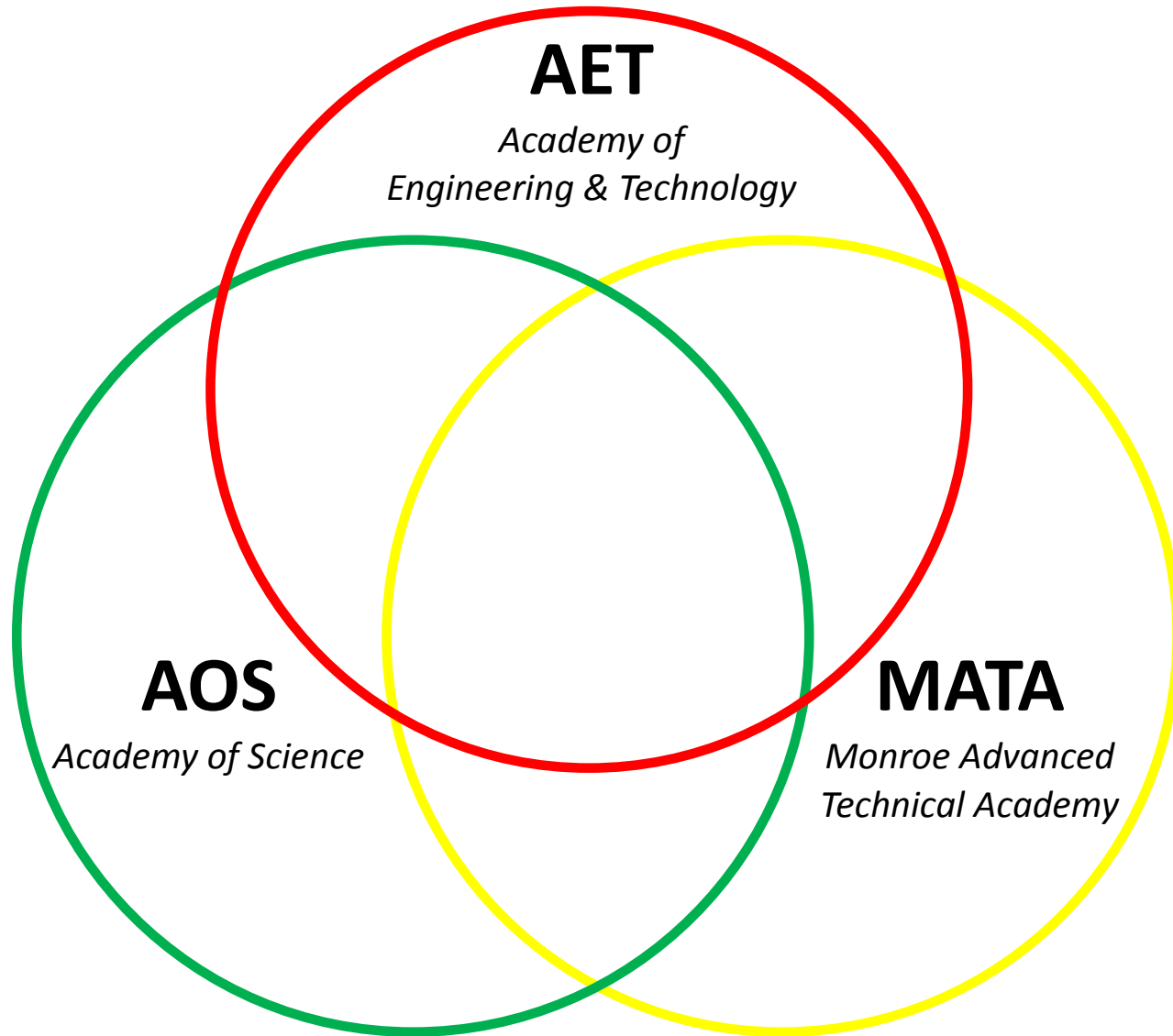
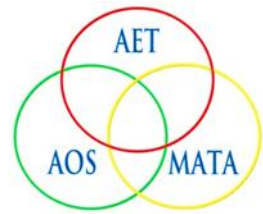


# The Academies of Loudoun

Creating Increased Opportunities for Exploration, Innovation and Advancement





## The Academies at Loudoun

### Mission Statement

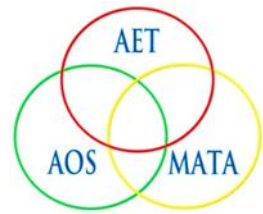
The mission of the Academies is to provide a 21<sup>st</sup> Century Science, Technology, Engineering, and Mathematics (STEM) education that creates opportunities for LCPS students and faculty to innovate, explore, research, and collaborate.

### The Academies Vision

- Serves all LCPS students
- Serves Loudoun residents
- State-of-the-art facilities, utilized beyond regular school hours and throughout the year
- Flexible schedules allowing access for more students.
- A project / research based resource open for use by all LCPS students.
- A facility housing resources and equipment accessible by all LCPS students for project research and investigation.
- Online/distance learning opportunities
- Provides multiple pathways toward college and career readiness
- Serves as an incubator for course development, professional development and instructional practices that could be implemented division-wide

### Goals:

1. Deepen students' knowledge, skills, and habits of mind that characterize STEM.
2. Provide multiple program pathways for advanced STEM coursework
3. Encourage collaborative academic integration across academy pathways
4. Develop expanded STEM curriculum and serve as an incubator for innovation & research
5. Implement a variety of usage models, flexible scheduling, and access for LCPS students
6. Provide LCPS students with the facility, resources, and state-of-the-art technologies to become the innovators and explorers of the 21<sup>st</sup> Century.
7. Foster business and industry partnerships for student mentorship/ internship opportunities
8. Offer community outreach opportunities



## What will be new?

- An integrated curriculum for 9<sup>th</sup> and 10<sup>th</sup> grade students that provides a strong STEM focus within computer sciences/information technology, engineering, career, and academic pathways. Students will earn 4 credits within multiple STEM disciplines over a two-year period. This foundation will then allow students to continue on to one of the identified academy pathways during the 11<sup>th</sup> and 12<sup>th</sup> grade year or to take additional elective courses at their individual high schools.
- Access to a highly-trained academic and technical staff to advise, assist, and mentor individual research and project-based learning activities.
- Students will have access to a variety of new STEM course offerings at the Academy of Engineering & Technology and the Monroe Advanced Technical Academy.
- Increased opportunities for dual enrollment and online coursework.

## What are the Academy programs?

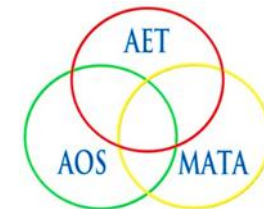
### ***Academy of Engineering and Technology (AET)***

The mission of the LCPS Academy of Engineering and Technology (AET) is to provide an academic environment where students can explore multiple program pathways for advanced STEM coursework while having the opportunity to pursue a rich, well-rounded high school experience. Students at the AET will deepen their knowledge, skills and habits of mind in the STEM fields. They will have the opportunity to participate in integrated, collaborative STEM focused programs across the AET and stay fully involved in their home high school academic and co-curricular activities.

AET pathways are built around integrated STEM course work that begins in a student's 9<sup>th</sup> grade year and continues in 10<sup>th</sup> grade. AET pathways blend science, technology, engineering and mathematics content in integrated courses that allow students to focus on STEM fields and attain multiple credits in an accelerated timeframe.

AET students are selected through an application process. Rising 9<sup>th</sup> grade students with an interest in STEM will be eligible to apply. A selection committee will meet to determine which students will be offered a slot for the following academic year. Selection is based upon the following criteria: student interest in STEM fields, quality of application content, academic achievement, discipline, attendance, and teacher and counselor recommendations. Students entering the AET as 9<sup>th</sup> graders must commit to a two year AET course of study. Students who have not completed Algebra I before entering the AET will be required to participate in Algebra "Boot Camp" in the summer prior to entering the AET.

Capacity: 250-1000 Students



### ***Academy of Science (AOS)***

The mission of the LCPS Academy of Science (AOS) is to provide an academic environment where students are encouraged to develop creative scientific endeavors of their own design, while having the opportunity to pursue a rich, well-rounded high school experience. A student at the AOS will acquire skills to ask sophisticated scientific questions and conduct research and experimentation, to explore the interconnections between the sciences, math, and the humanities, to read, write, and communicate at a level that is required of university students, and to develop perspectives to assess the impact of scientific advancements on society.

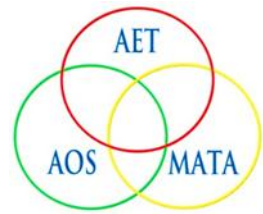
The cornerstone of science preparation is a ninth/tenth grade integrated science program, which blends the physical sciences of physics, chemistry and earth science into a seamless, inquiry based lab course in preparation for independent research. The goal of the lab program is student designed investigations coupled to an in-depth writing/scoring rubric. In addition, sophomores begin instruction in basic research technique to be followed by two years of research in a topic of their choosing. The Math program offers courses from Algebra and Trigonometry through Multivariable Mathematics. All courses have a heavy component of statistics and modeling and are taught in terms of practical application in order to coincide with the science program.

AOS students are selected through an application process. Rising ninth grade students are invited to attend after a competitive process that evaluates test scores, academic achievements, writing samples, teacher recommendations, and self-reported interests and activities. Student motivation and interest in science are the most valuable characteristics of AOS students. Highly motivated students who are consistent, dedicated learners have the greatest chance of success.

Capacity: 500 students

### ***Monroe Advanced Technical Academy (MATA)***

The mission of the Monroe Advanced Technology Academy is to provide a college and career ready curriculum that offers students multiple career pathways. These career pathways are built around an integrated STEM and entrepreneurial curriculum that begins in a student's 9<sup>th</sup> grade year and continues in 10<sup>th</sup> grade. MATA pathways blend science, technology, and mathematics content in integrated courses that allow students to focus on STEM and/or specific career pathways to attain multiple credits in an accelerated timeframe. This strong foundation will ultimately prepare students to become college and career ready.



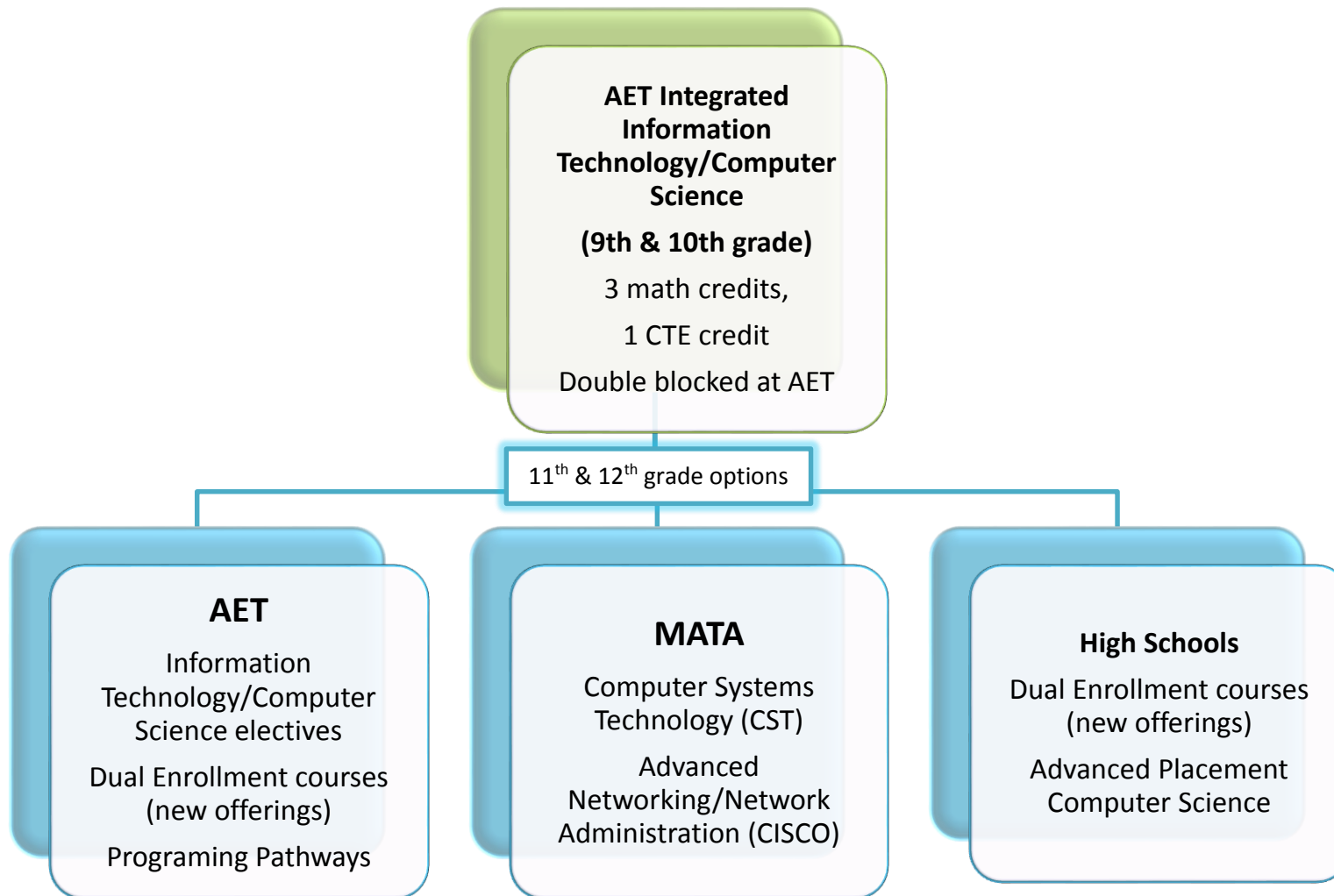
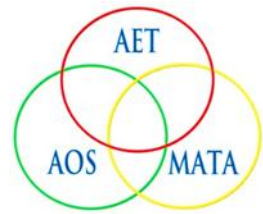
MATA students are selected through an application process. Rising 9<sup>th</sup> grade students with an interest in STEM and/or specific career clusters will be eligible to apply. A selection committee will meet to determine which students will be offered a slot for the following academic year. Selection is based upon the following criteria: student interest in STEM and/or specific career pathways, quality of application content, academic achievement, discipline, attendance, as well as teacher and counselor recommendations. Students entering the MATA as 9<sup>th</sup> graders must commit to a two year MATA course of study. Students who have not completed Algebra I before entering MATA will be required to participate in Algebra “Boot Camp” in the summer prior to entering ATA.

Capacity: 750-1000 students

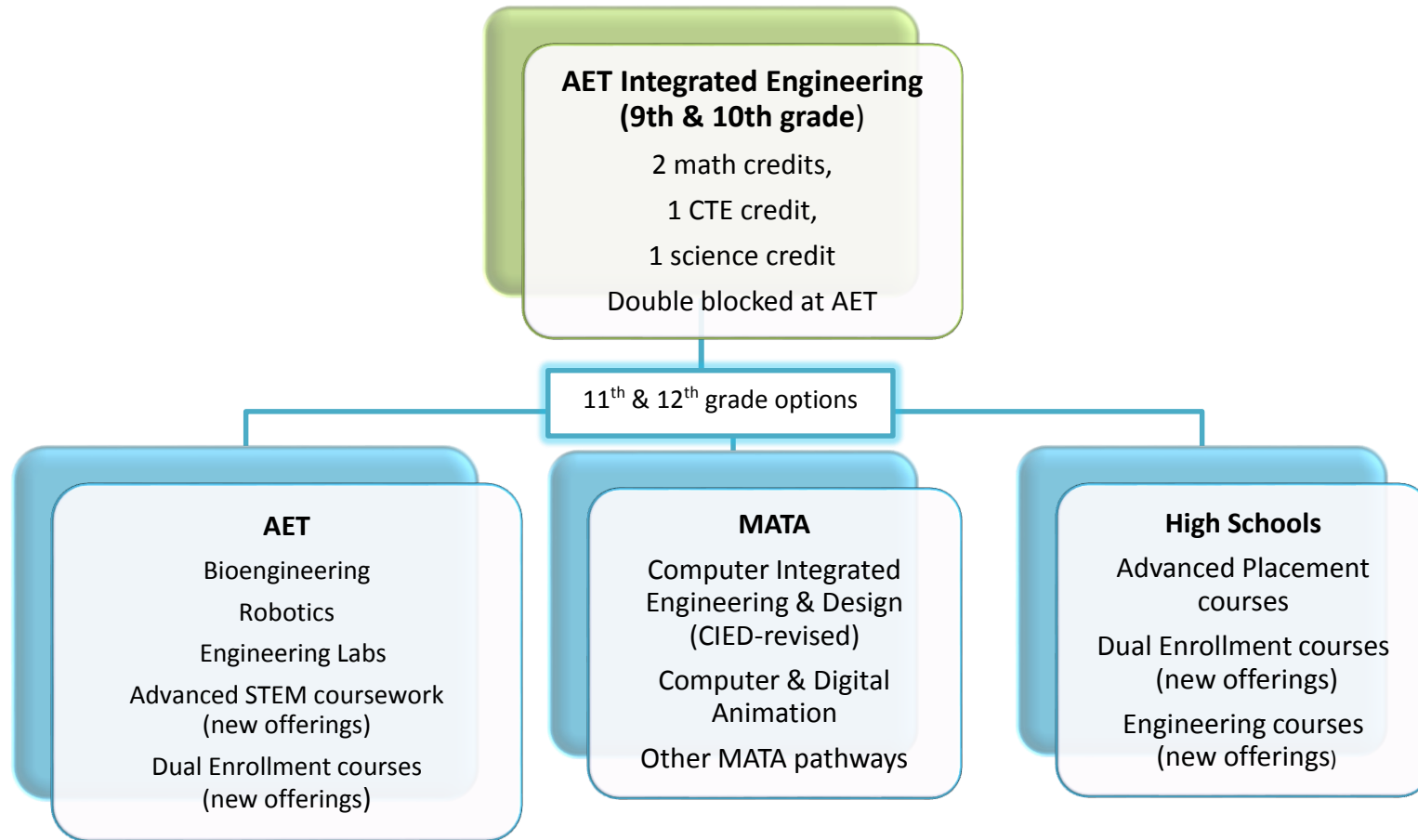
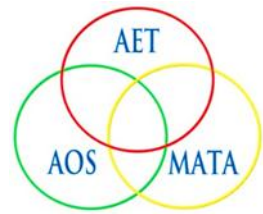
### **Outreach**

The Academies will offer new opportunities for LCPS students and staff. They include summer offerings (camps, enrichment, internships), professional development for teachers, access to shared resources and equipment for LCPS students, increased Gifted Education opportunities, and independent research mentoring with the goal of building a culture of research in STEM.

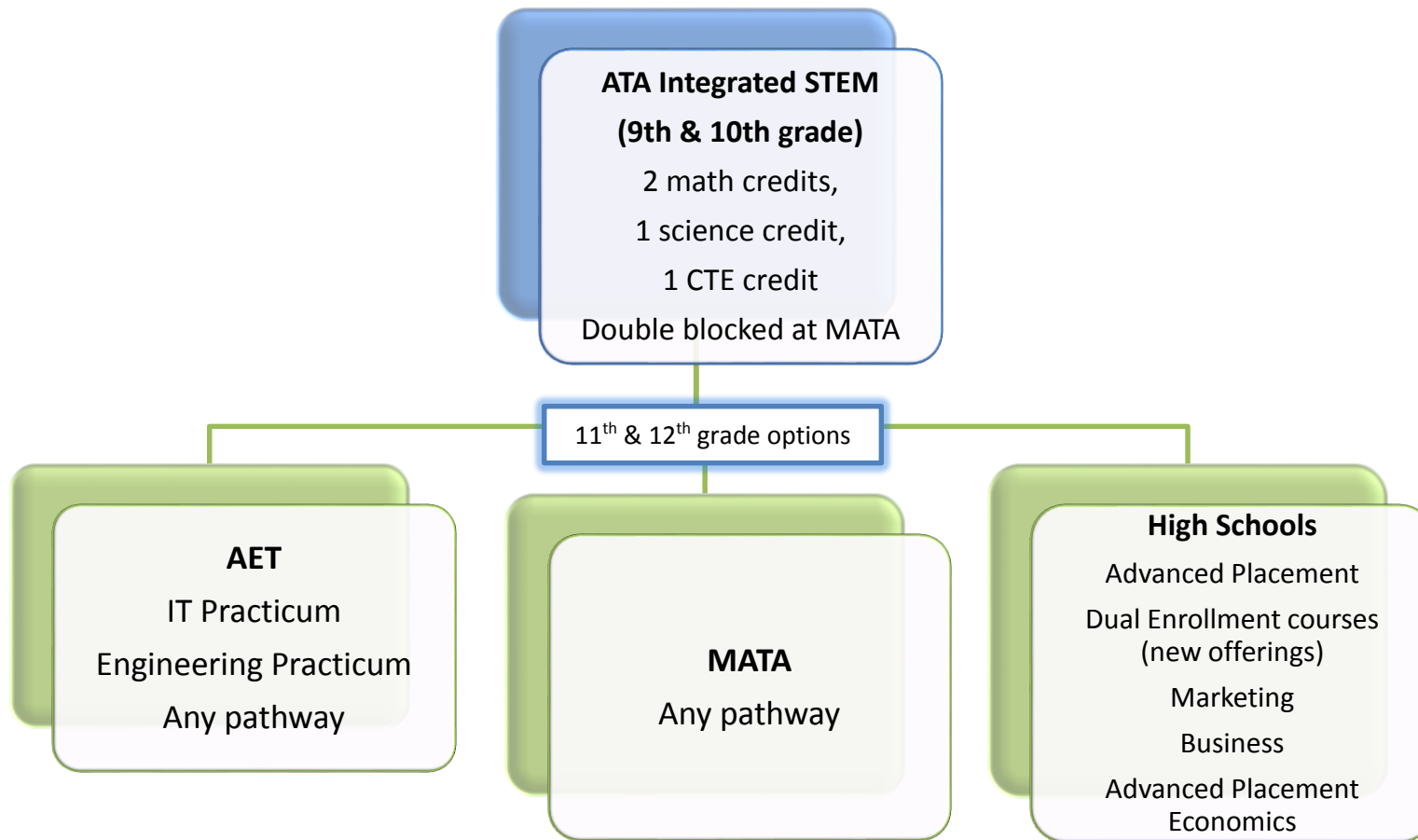
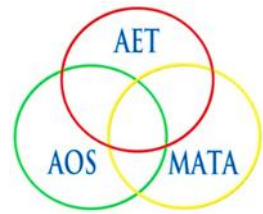
Additionally, the facility will serve as a hub for Adult Education and will be designated as an official Pearson-Vue testing center. Programs would include adult English Language Learner (ELL), adult high school diploma program, General Equivalency Diploma (GED), adult Basic Literacy, and general interest courses.



- Students enter AET as 9<sup>th</sup> & 10<sup>th</sup> graders
- Students commit to a 2 year double blocked integrated course
- **Course integrates math and CTE, Alg 2/Trig, Geometry, Computer Math and Modeling & Simulation Technologies (8460), (4 credits in 2 years)**
- Students who have not taken Algebra I will be required to participate in Algebra “Boot Camp” during the summer
- As 11<sup>th</sup> & 12<sup>th</sup> grade students have the option to enter MATA programs, stay at their home high school and take AP & DE courses or chose to include AET courses (new) in IT and CS, i.e. programing, cybersecurity, in their course schedule
- Online courses (new) offered to allow students flexibility in scheduling between programs



- Students enter AET as 9th & 10th graders
- Students commit to a 2 year double blocked integrated course
- **Course integrates Math-Geometry, Alg 2/Trig, Physics and CTE Elective-Engineering Studies (8491), (4 credits in 2 years)**
- Students who have not taken Algebra I will be required to participate in Algebra “Boot Camp” during the summer
- As 11th & 12th grade students have the option to enter MATA programs, stay at their home high school and take AP & DE courses or chose to include AET courses (new) in Engineering, Engineering Research Labs in their course schedule
- Online courses (new) offered to allow students flexibility in scheduling between programs



- Students enter ATA as 9th & 10th graders
- Students commit to a 2 year double blocked integrated course
- Course integrates Math-Geometry, Alg 2/Trig, Physics and CTE Elective-Entrepreneurship (9093), (4 credits in 2 years)
- Students who have not taken Algebra I will be required to participate in Algebra “Boot Camp” during the summer
- As 11th & 12th grade students have the option to enter MATA programs, stay at their home high school and take Marketing, Business and Advanced Placement & Dual Enrollment courses or chose to include AET courses (new) in their course schedule
- Online courses (new) offered to allow students flexibility in scheduling between programs