

Valley STEM FAQ:

Q: What will my diploma say?

A: Currently, there are only grades 9 and 10 at Valley STEM, so you would receive a diploma from your home school if you return. If you attend MCCTC as 11/12th grader, you would receive diploma from homeschool like current CTC students.

Q: Can I follow the dress code of my home district?

A: The expectation is that students dress professionally. The Valley STEM+ME2 Academy respects the individuality of its students within the parameters of a business casual attire. They should treat every day as an opportunity to look and dress the part of a young adult about to enter the real world.

Q: Can I still participate in extracurriculars and sports at my home district?

A: STEM students will be eligible to participate in all athletics and **extracurricular** activities in their district of residence. Students are subject to the same rules and fees as all other students at that district. Co-curricular activities (those that occur during the school day) are at the discretion of the home district. Please contact your district of residence for more information.

Q: Can I attend pep assemblies at my home school?

A: This is at the discretion of the home district. In most cases, schools allow (although some do not). You are allowed to participate in extracurricular activities and events in your home district. Please contact your district of residence for more information. Co-curricular activities are up to the home district. Other events are the discretion of the home district.

Q: What if my child wants to take band or choir at the home district?

A: We will work with the home districts on flexible solutions on a case-by-case basis. Students are entitled to participate in extracurricular activities. **If band is co-curricular**, it is up to the home district whether to allow participation.

Transportation/Location

Q: Where is the school located?

A: The school will be on the campus of MCCTC. No additional transportation will be required, since the Valley STEM + ME2 Academy schedule will mirror that of the MCCTC. Transportation is provided by the home district, as **required by law**.

Q: I want to drive my student to school - where do I drop off?

*Valley STEM + ME2
FAQ Document
Feb. 2018 REV*



A: Exact driving patterns and drop-off locations will be posted on the website in the summer. This is also an option for transporting students (bus) to the Academy.

Q: Can I visit to take a tour of the location where my student will attend class? If so, when?

A: Yes, we will start tours immediately upon receiving applications. More information will be posted on our website. You can also email cara.kelty@mahoningctc.com to schedule a tour.

College

Q: How do colleges view students who attend STEM schools?

A: All graduation requirements are met for students who attend the STEM school, and prepare students for college.

Q: Can students still participate in college credit plus options?

A: Yes. We have offerings for students in STEM. Contact Cassandra.bair@mahoningctc.com for more information. This is a priority for our students.

Q: What is STEM Education?

A: “STEM stands for science, technology, engineering and mathematics, but it is far more than just an acronym. While originally designed to encourage more students to pursue careers in these specific areas, STEM education has evolved into a unique approach to teaching and learning that fosters creative and innovative thinking in all students. STEM education is a direct response to the realization that other states and nations are gaining competitive advantage by asserting their scientific and technological leadership. Ohio’s future will be built on its own capacity for innovation, invention and creative problem solving.

Q: How is STEM education different from a traditional approach to education?

A: “STEM schools are centers of creativity and innovation that provide challenging, student-centered, inquiry-based educational experiences that are cross-disciplinary in nature and relevant to the real world. In a partnership with traditional schools, STEM education emphasizes the technological design process and integrates subjects to emphasize connections across disciplines. In a STEM classroom, students develop analytical and creative skills through investigation and problem solving. STEM moves beyond an emphasis on simple test performance and focuses instead on developing higher-level thinking skills. STEM education typically features strong levels of collaboration among education, business and community partners. Partners help develop relevant curriculum and provide internships, mentorships and co-operative education opportunities to allow students to connect classroom learning to the real world.” - *Ohio STEM Learning Network*

Q: Is it true that STEM education is only for a small, select number of students interested in careers in math and science fields?

A: “Not at all. While increasing the number of young people who choose careers in STEM fields is certainly one objective driving STEM education, it is only part of the story. STEM education develops skills that have a much broader application. STEM education emphasizes collaboration, communication, research, problem solving, critical thinking and creativity. These are skills that all students must have to be successful in today’s world, no matter their specific interests or career goals. STEM education also places a strong emphasis on personalizing educational experiences to best suit students’ individual learning styles and interests, which means STEM education has something to offer to every student.” - *Ohio STEM Learning Network*

Q: How does STEM education benefit Ohio?

A: “STEM education is really about developing globally competent talent. As such, STEM education is a key strategy for Ohio’s economic success – for stimulating economic development in our state and creating economic opportunity for our citizens. A STEM-literate workforce will attract investment and jobs, and good jobs and economic opportunity will attract and retain world-class talent. More specifically, the development of Ohio’s growing network of STEM schools is driven by, and linked to, regional economic strengths and workforce needs. Business, informal education and community partners play a vital role in helping to ensure that STEM learning experiences develop the highly skilled workers that local and regional employers need to compete globally.” - *Ohio STEM Learning Network*

Admission

Q: My child does not live in Mahoning county, can they attend?

A: Absolutely! The STEM designation from the state allows students from all over the state to apply to attend. Any student in any district can apply. The school is open-enrollment statewide. We currently have students from 20 districts.

Q: When is the application deadline? How can I apply?

A: The application is currently open on the website at <http://mahoningctc.com/valley-stemme2-academy>. There are no academic admission criteria – all students who apply during that time have an equal chance of being accepted (unless on list of students given preference-see below). Students must be at grade level to start.

Q: Does my student need a certain GPA or attendance requirements to get in the school?

A: No. The STEM designation means that we must be a non-selective school, and is not based on prior academic success. Students cannot have any expulsions from any

district. Valley STEM is a rigorous program, where certain prerequisite skills will help promote success. Students must be at grade level.

Q: What does non-selective mean? Is it based on a first-come-first-serve basis?

A: Non-selective means that we cannot select the students that we want to attend the school. To be admitted into the school the student and guardian must first fill out the application, located on the Valley STEM home page. The application goes into a database and is assigned a number based on the time it is received. If more students apply than we have spots for then a blind-lottery is done in order to determine which students get in. This is the same procedure that is done in all STEM schools. There are no academic admission criteria – all students who apply during that time have an equal chance of being accepted (unless on list of students given preference-see below).

How is the success of Valley STEM measured?

3326.17 Annual report card for each school.

(A) The department of education shall issue an annual report card for each science, technology, engineering, and mathematics school that includes all information applicable to school buildings under section [3302.03](#) of the Revised Code.

(B) For each student enrolled in a STEM school, the department shall **combine data regarding the academic performance of that student with comparable data from the school district in which the student is entitled to attend school** pursuant to section [3313.64](#) or [3313.65](#) of the Revised Code for the purpose of calculating the performance of the district as a whole on the report card issued for the district under section [3302.03](#) of the Revised Code.

(C) The department also shall compute a rating for each group of STEM schools that is under the direction of the same governing body, as authorized under section [3326.031](#) of the Revised Code, and issue a distinct report card for the group as a whole.

(D) Each STEM school and its governing body shall comply with sections [3302.04](#) and [3302.041](#) of the Revised Code, except that any action required to be taken by a school district pursuant to those sections shall be taken by the school. However, the school shall not be required to take any action described in division (F) of section [3302.04](#) of the Revised Code.

Q: Can you explain the differences between a STEM school and a charter school?

A:

Charter Schools	STEM Designated Schools (Valley STEM + ME2)
The student is only part of that school.	The student is a STEM school student and a student of the district in which they reside.



State assessment scores remain at the charter school	State assessment scores are shared between the STEM school and home district.
Need sponsors and have authorizers established by statute or approved by the State Board of Education.	Does not need a sponsor. Develops a governance board that is a mixture of public school officials, business and industry leaders and higher education personnel.
Operate independently of any school district.	Partner with local school districts.
Charter schools can be Pre-kindergarten to 12th grade.	STEM designated schools can only be 6th through 12th grades.

Q: How is a STEM School Funded?

A: The foundation money provided by the State will be used to fund the STEM school for each child that attends.

Q: Are there any other STEM schools?

A: Visit <http://www.osln.org/schools/> or a full list of STEM designated schools. Valley STEM + ME2 is the only STEM designated high school in Mahoning County.

Q: What happens to my student after their 10th grade year?

A: They will identify a STEM pathway to follow based on the interest they gained in the 9th and 10th grades to focus on for 11th and 12th grade. They will go into a more focused program based on their area of interest. After sophomore year, students can choose to follow pathways to the MCCTC (as long as admission criteria is met) in Engineering, STEM, Clean Energy Technology, Advanced Manufacturing, Biotechnology, Allied Health, Informational/Computer Technology, or any of the 23 programs at MCCTC. Students who meet MCCTC admission requirement will be given preferred status upon applying to MCCTC. If a student does not want to attend MCCTC, or the 11/12 STEM Pathway, they have the option to return to their home district. All credits will transfer, and will be integrated onto the homeschool transcript.

Q: Is the STEM Academy part of MCCTC? Are STEM Students MCCTC Students?

A: The STEM Academy is housed at MCCTC, but it is not a Career Tech Program. The location is advantageous for transportation purposes, and access to additional high-tech equipment and resources. The content learned in grades 9 and 10 at the STEM Academy will segway into 11-12 programs if the student chooses (and meets MCCTC admission requirements). After sophomore year, students can choose to follow pathways to the MCCTC (as long as admission criteria is met) in Engineering, STEM, Clean Energy Technology, Advanced Manufacturing, Biotechnology, Allied Health, Informational/Computer Technology, or any of the 23 programs at MCCTC. Students who meet MCCTC admission requirement will be given preferred status upon applying to MCCTC. If a student does not want to attend MCCTC, they have the option to return



Program	Credentials Offered/Points
Creative Art and Design	Adobe Credentials (Illustrator, InDesign, & Photoshop) 4 points each, total of 12 points OSHA (1 point)
Cosmetology	Ohio State Board of Cosmetology License (12 points) OSHA (1 point)
Culinary Arts	Prostart Certification (9 points) Serve-Safe Certification (3 points) OSHA (1 point)
Business IT	CompTIA A+ (6pts) CompTIA Network + (6pts) Microsoft Office Specialist Access 2013 (3pts) Microsoft Office Specialist Excel 2013 (3pts) Microsoft Office Specialist Excel 2013 Expert (3pts) Microsoft Office Specialist Powerpoint 2013 (3pts) Microsoft Office Specialist Word 2013 (3pts) Microsoft Office Specialist Word 2013 Expert (3pts) Microsoft Technology Associate Database (6pts) Microsoft Technology Associate Developer (6pts) Microsoft Technology Associate IT Infrastructure (6pts) Occupational Safety and Health Administration (OSHA) (1pt)



Shield Academy

PROGRAM

OUTPUTS

Program	Credentials Offered/Points
Early Childhood Education	CDA (12) Communicable Diseases (1) Child Abuse (1) OSHA (1) CPR (1)

Exercise Science	Personal Trainer (3) EMT (12) CPR (1) OSHA (1)
Medical Occupations	STNA (12) Phlebotomy(12) OSHA (1) CPR (1)
 Public Safety	FFI & FFII (12) EMT (12) NIMS 100, 200, 700, 800 (10) Dispatch (3) CPR (1) OSHA (1)

Machine Team

PROGRAM

OUTPUTS

Program	Credentials Offered/Points
Advanced Manufacturing 	Manufacturing Skill Standards Council (MSSC)-Certified Production Technician (12 points) NIMS: (National Institute for Metalworking Skills) (12 points) NCCER (6 points); NIMS Articulated Credit EGCC

Collision Repair	Automotive Service Excellence (ASE) (4 student tests, 3 pts. Each, 12 total points) ICAR (12 points)
Truck and Diesel	Automotive Service Excellence (ASE) (4 student tests, 3 pts. Each, 12 total points). Fork Lift/Man Lift (1 point each)
Digital Print Technology	Adobe Credentials-Adobe Certified Associate for - InDesign, Illustrator and Photoshop (3 @4 points, total of 12 points)
Welding	American Welding Society (AWS) (12 points) EGCC Articulated College Credit

Global

PROGRAM

OUTPUTS

Program	Credentials Offered / Points
Aviation	(FAA) Powerplant Mechanic(12pts) (FAA) Airframe Mechanic(12pts) Occupational Safety and Health Administration (OSHA) (1pt)
Auto Tech	(ASE) - A4 ASE Suspension & Steering (12pts) (ASE) Maintenance & Light Repair (MLR) (G1) (12pts) (ASE) - A5 Brakes (12pts) (ASE Student) - 10 Tests for 3pts per test. Occupational Safety and Health Administration (OSHA) (1pt)
Building & Construction	NCCER Core (6pts) NCCER Level 1 (6pts) Occupational Safety and Health Administration (OSHA) (1pt)
Electricity 	NCCER Core (6pts) NCCER Level 1 (6pts) Occupational Safety and Health Administration (OSHA) (1pt)
Wildlife and Fisheries	Occupational Safety and Health Administration (OSHA) (1pt) NCCER Core (6 points) NCCER Level 1 (6pts)

Q: Will my child attending the STEM school negatively affect the funding of my child's home district?

A: No. Even though the foundation money for that student is going to the Stem Academy, there

will be other means for cost savings. Since the MCEC is the fiscal agent, cost savings will be provided directly to partner schools.

Curriculum/Format

Q: What is the curriculum?

A: The Academy will utilize a combination of Project Lead the Way, combined with other Engineering standards for Exploratory Engineering. As part of the course students will also engage with the [SREB Curriculum \(Clean Energy Pathway\)](#). All standards set forth by law will be followed. You can also view the coursework tab on the website for more information. Industry/business partners (Ohio Oil and Gas Education Program, Mahoning Valley Manufacturer's Coalition, Mahoning and Columbiana Training Association, AST2, etc) are helping us to develop problem-based learning units that incorporate manufacturing and energy concepts that may span multiple courses. The 4th semester (10th grade, second semester), students will start to become more specialized according to their interests.

Q: How will physical education, health , and foreign language requirements be met?

A: Students may opt to take PE online during their 9th or 10th grade years or use the varsity letter sport option, if it applies. Credit flex opportunities apply in a STEM designated school. Foreign language will be offered in a blended learning format, and students will have option to choose which language is taken. Students can also take PE in summer school at their home district prior to enrolling in STEM.

Q: Is this only a 9th and 10th grade school or is it 9th through 12th? Why?

A: One of our goals is to provide the student with an additional options. We will have 9th through 10th grade courses, which will include college courses and career-technical education courses. During the 9th and 10th grades students receive a more generalized STEM education with courses that are introductory to the pathways they can specialize in during 11th and 12th grades (see next question).

Q: Have you thought about the districts' valedictorian/salutatorian requirements? Each district has a different policy; how are you going to meet the students' needs? Example: our school requires students who want to become valedictorian or salutatorian to take certain honors and AP classes. Will these types of classes be offered?

A: If they return to the district starting in 11th grade they will have completed enough coursework to allow them time to take the district required AP or honors courses at the 11th and 12th grade level. Valedictorian requirements are set by the home districts. Their diploma would come from their home district.

For the purpose of college applications and credits, letter grades and GPAs will be calculated on a yearly basis, or whenever the student transfers out of the STEM school in order to be reported back to the home district.

Q: Who will be required to keep track of the students' credits and state test results?

A: The STEM school will track the student's credits and state test results, but the home district may as well. The students' scores are shared between the STEM school and their home district for accountability (this is in Chapter 3326 of ORC on STEM schools-see above).

Electives

Q: What electives does Valley STEM + ME2 Academy Offer?

A: The STEM School offers a variety of electives at both the Freshman and Sophomore level. Descriptions are below.

FRESHMAN COURSE ELECTIVES

Clean Energy 1 & 2 - Clean Energy Systems:

This course exposes students to sources of renewable energy: wind, solar, biofuels, nuclear power, steam generation, fuel cells, geothermal power, water power, AC/DC power generation, heat transfer and the laws of thermodynamics. Working with solar, thermal, chemical and mechanical sources of clean energy teaches students how to apply physics, geography, chemistry, biology, geometry, algebra and engineering fundamentals. Students learn the most efficient and appropriate use of energy production as they explore the relevant relationships among work, power and energy. Students will engage in a wide variety of hands-on projects and lab activities that both test their knowledge and illustrate the interrelationships between the various forms of clean energy.

Robotics 1:

Students will apply the knowledge and skills necessary to design, build, program, and operate Robots at an advanced level. The Students will learn robotic operations and system configurations. Students will code, compile, and debug programs using multiple robotic programming languages. Students will also be introduced to aspects of physical computing. A capstone project will allow for students to independently apply skills learned in this course by creating their choice of project at the end of the course.

Exploratory Engineering:

This course exposes students to the different types of engineering through conducting research about the different fields and careers of engineering and by completing hands on projects and lab activities. Each quarter students will learn new topics and engage in hands on projects, allowing them to directly experience the types of engineering and manufacturing in our world. Students will start by learning the basics of engineering such as the Design Process, technical writing, blueprint reading, and sketching. Students will then progress to learn Autodesk Inventor (CAD), simple machines, reverse engineering, AC/DC circuits, breadboard and soldering, CNC machining, CNC router, additive manufacturing and subtractive manufacturing. These projects will be supported with research quizzes on each module. These quizzes will help connect the learners hands-on experience with the engineering and design principles that accompany the modules.

21st Century Communications:

This course gives students practice in communication skills of reading, writing, listening and speaking in their chosen vocations. Students learn to write professionally and deliver presentations that effectively convey information and persuade or entertain audiences. Students will practice speaking and technical writing skills in combination with using the STEM lab machines and writing and speaking to community

members. The purpose of this course is to prepare students for 21st century communication skills so that they will excel in professional communication both within their school and in the real world.

SOPHOMORE COURSE ELECTIVES

Biomedical Engineering

Students will learn how the principles of human physiology, biology, and chemistry come together for the human body to function, and how the principles are used to treat disease. Students will participate in anatomical dissection, and gain an appreciation of human skeletal anatomy.

Journalism:

This course will focus on empowering STEM students to build 21st century skills through communications, marketing, entrepreneurship, social media, and journalism. The purpose of the course will be to develop business relationships to reach the needs of the school and community.

Robotics 1:

Students will apply the knowledge and skills necessary to design, build, program, and operate Robots. The Students will learn robotic operations and system configurations. Students will code, compile, and debug programs using multiple robotic programming languages. Students will also be introduced to aspects of physical computing. A capstone project will allow for students to independently apply skills learned in this course by creating their choice of project at the end of the course.

Robotics 2:

This course expands upon the Robotics 1 Course and allows students to work independently on building and programming robots. Students will learn more in-depth about sensors, motors, gears, lift designs, and more complex computer programming strategies.

Manufacturing Engineering:

This course is designed to build off what you learned in Exploratory Engineering. This class is a project based class that is also Inquiry Based. Students will again research and study areas of engineering and manufacturing and go more in depth on many of the same disciplines touched on in Exploratory Engineering. Some new concepts would likely include CNC turning, 4th Axis CNC router, CIM, Hydraulics, 3D Printing, Reverse Engineering and project design. This course will also include a Capstone type project which allows all students to showcase what they learned utilizing multiple machines.

FANUC/Motoman:

FANUC -

This will be a survey course, allowing students to have exposure to the concepts below. The course provides an introduction to the terminology and basic operations that an operator or technician needs to setup, record and/or troubleshoot programs on an actual FANUC Robot. Each learner will interface with FANUC RoboGuide 3-D Simulation software on a laptop computer connected to an actual FANUC robotic teach pendant.

Topics include:

- * Robot Safety
- * Basic Robot Systems and Components

Valley STEM + ME2

FAQ Document

Feb. 2018 REV



- * Teach Pendant Familiarization
- * Jogging Fundamentals
- * Error and Fault Recovery
- * Frames
- * Teaching the Robot
- * Motion Programs and Motion Instructions
- * Controlling Program Flow
- * Copying and Editing Programs

Hands-on exercises include lab time working with an actual FANUC LR Mate 200iD/4S Robot in the RAMTEC lab.

Motoman -

This will be a survey course, allowing students to have exposure to the concepts below. The course provides an introduction to the terminology and basic operations that an operator or technician needs to setup, record and/or troubleshoot programs on an actual MotoMan FS100 Robot. Each learner will interface with MotoSimEG-VRC 3-D Simulation software on a laptop computer.

Topics include:

- * Working safely in and around the robot cell
- * Powering up/down
- * Jogging the robot using all coordinate systems
- * Modifying points, motion type and speed
- * Adding position levels
- * Checking specified point
- * Recovering from alarms and errors
- * Cutting and pasting instructions
- * Creating and working in user frames
- * Defining and using Position Variables
- * Programming SFTON and SFTOF Instructions

Hands-on exercises include lab time working with an actual MotoMan FS100 Robot in the RAMTEC lab.

Partners

Q: Why did you create district partners?

A: According to Ohio Revised Code [3326.03(B)(1-3)] a STEM school must be a partnership of public and private entities consisting of:

- (1) A city, exempted village, local, or joint vocational school district or an educational service center;
- (2) Higher education entities;
- (3) Business organizations.

Q: Why is my district not a partner?

A: We are excited about building partnerships with all local districts. If your district is not listed as a partner feel free to engage your superintendent in the process.

Q: Is there still an opportunity to partner with the STEM school?

A: Yes. The “me too” philosophy of the school welcomes anyone to be a partner as long as they have valuable contributions to the school’s goals, mission and vision.

Q: What is the benefit to partnering districts for a student attending the STEM school?

A:

- ★ Provide options to students pursuing STEM (including Manufacturing, Energy and Entrepreneur) areas of study through enriched curriculum involving industry specific technologies linked to workplace competencies
- ★ Participate in available STEM professional development opportunities available that would enhance the PK-8 STEM programs in districts
- ★ Increase the opportunities to STEM resources, materials and equipment through cost sharing, and sharing of facilities and staff (when appropriate and mutually agreed upon)
- ★ Increase interest in district led PK-8 STEM programs through outreach, marketing and recruitment strategies by strengthening ties to other system partners
- ★ Strengthen PK-8 STEM programs by aligning to courses of study that incorporate work-based learning components and provide more hands-on opportunities for students
- ★ Improve student preparedness by aligning required STEM programs to specific skills and competencies
- ★ Learn about best STEM educational practices from others within the region and across the state through a direct connection with the Ohio STEM Learning Network (OSLN) and Battelle
- ★ Be represented in the decision-making process by filling one of the appointed positions to the Governance Board and/or providing insight and expertise to a Committee
- ★ Identify and attract more resources to support innovative PK-12 program design within the district

Q: Who are your business/industry partners?

A: The partners include:

- ★ Eastern Ohio Education Partnership
- ★ Advanced Systems Technology Transfer (AST2)
- ★ Mahoning and Columbiana Training Association
- ★ Mahoning Valley Manufacturers Coalition, OH WOW!- The Roger & Gloria Jones Children’s Center for Science & Technology

- ★ Ohio Academy of Science
- ★ Ohio Oil and Gas Energy Education Program
- ★ NYO Property Group, and the Youngstown/Warren Regional Chamber

Q: How can I find out more?

A: Our website has the most updated information: <http://mahoningctc.com/valley-stemme2-academy/> You can also follow us on social media sites such as Twitter @STEMAcademy2 and Facebook.

For more information, email [Mara Banfield](mailto:r.young@mahoningctc.com), Director, Valley STEM+ME2 Academy, or Rachel Young, STEM Coordinator, at r.young@mahoningctc.com. Follow on twitter @STEMAcademy2.

