



# YSLETA HIGH SCHOOL MECHATRONICS ENGINEERING ACADEMY

T-STEM Renewal Application

2019-2020

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# Background

## District Affiliation

YSLETA ISD

CD #: 071905

Region: 19

Mailing Address (Line 1): 9600 SIMS DR

Mailing Address (Line 2):

City, State, Zip: EL PASO, TX 79925

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## School Affiliation

### YSLETA H S

**CDC #:** 071-905-004

**Region:**

**Mailing Address (Line 1):** 8600 ALAMEDA AVE

**Mailing Address (Line 2):**

**City, State, Zip:** EL PASO, TX 79907

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### YSLETA MIDDLE

**CDC #:** 071-905-046

**Region:**

**Mailing Address (Line 1):** 8691 INDEPENDENCE DR

**Mailing Address (Line 2):**

**City, State, Zip:** EL PASO, TX 79907

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### RIO BRAVO MIDDLE

**CDC #:** 071-905-052

**Region:**

**Mailing Address (Line 1):** 525 GREGGERSON DR

**Mailing Address (Line 2):**

**City, State, Zip:** EL PASO, TX 79907

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## Academy Information

**T-STEM Academy Name:**

YSLETA HIGH SCHOOL MECHATRONICS ENGINEERING ACADEMY

**Are you currently in the 2018-2019 planning year or are a 2018-2019 planning grantee?**

No

**What grade level range will your academy serve in the 2019-2020 school year?**

6-12

Grade Level	Number of Students	School / CDC # Where Students are Enrolled
6	110	YSLETA MIDDLE (071905046)
7	110	YSLETA MIDDLE (071905046)
8	110	YSLETA MIDDLE (071905046)
9	60	YSLETA H S (071905004)
10	60	YSLETA H S (071905004)
11	60	YSLETA H S (071905004)
12	60	YSLETA H S (071905004)

# Contacts

## Business Partner

**Affiliation:** El Paso Electric  
**Job Title:** EPE Communications Specialist  
**Full Name:** Ms. Karmen Mayorga  
**Email:** Karmen.Mayorga@epelectric.com  
**Phone Number:** 915-351-4263

## Superintendent

**Job Title:** Superintendent  
**Full Name:** Dr. Xavier De La Torre  
**Email:** xdelatorre@yisd.net  
**Phone Number:** 915-434-0000

## Applicant

**Job Title:** Assistant Principal  
**Full Name:** Mrs. Amy Alarcon  
**Email:** abejarano1@yisd.net  
**Phone Number:** 915-434-8007

## IHE Liaison

**Affiliation:** El Paso Community College  
**Job Title:** Dean of Dual Credit and ECHS  
**Full Name:** Ms. Tonie Badillo  
**Email:** mbadill4@epcc.edu  
**Phone Number:** 915-831-6755

# Narratives

## Model Implementation

**Which T-STEM model does the district intend to implement at this time? Within these models, there are variations. For this purpose campus is defined as a CDC number not a physical location.**

School-Within-School: Multiple Campuses - A subset of students in grades 6-12 are enrolled in the T-STEM academy. This model typically spans a middle school and high school. This may also be applicable if 9th grade is on a separate campus due to physical space issues.

## Endorsements

**Identify the current endorsements that are offered:**

- Science, Technology, Engineering, and Mathematics (STEM)

## Certificates

Does this academy offer Associate Degrees to students?

No



## TSIA

Does this academy administer the TSIA exam?

Yes

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What ID number do students use when taking the TSIA exam?

College ID

## Key Elements for Success

**Provide a link to the job description, roles of design team, leadership team, and advisory board.**

<https://www.yisd.net/domain/3594>

**Provide a link to the final, signed, and executed MOU.**

<https://www.yisd.net/domain/3594>

**Provide a link to the academy's master schedules.**

<https://www.yisd.net/domain/3594>

**Provide a link to the academy's written admission policy and enrollment application.**

<https://www.yisd.net/domain/3594>

**Provide a link to the academy's written recruitment plan including a timeline of recruitment and enrollment events, and recruitment materials for distribution at feeder schools and other appropriate locations in the community**

<https://www.yisd.net/domain/3594>

**Provide a link to the academy's internship and externship opportunities.**

<https://www.yisd.net/domain/3594>

## Free-Response

### **Describe how the Academy will recruit, support, and retain highly qualified teachers.**

The success of the Academy will in part come from the dedicated teachers in the program. T-STEM Academy teachers will not only come from STEM areas, but also from the areas of business, language arts, and social studies. Selected SLC time will be used to allow teachers to collaborate across curricula on STEM PBL projects and discuss students' progress and/or interventions needed. In addition, core teachers will have common planning periods with other teachers in their content through Professional Learning Communities (PLCs) to ensure proper alignment with State and Local standards.

All new teachers in the district take part in a mentor program with an experienced teacher on their campus in their field. Through the program, they will attend district and campus meetings and take part in conversations to help support the new teacher. New STEM teachers will also have the Academy T-STEM coordinator as an additional mentor to support them.

All T-STEM Academy teachers will be trained in the areas of Project Based Learning (PBL) and STEM curriculum. This professional development will be done in partnership with Educate Texas coaches. Teachers are asked to be part of the Academy based on their course offerings and interest in helping incorporate PBLs and STEM-ifying their classes. Teacher summer externships with STEM partners will also be part of the professional development plan. Academy teachers teaching advanced academics will receive necessary training through College Board and/or the National Math and Science Institute.

In addition to summer externships T-STEM Academy teachers will be provided with the opportunity to attend training geared to help teachers learn new and relevant content. Teachers will also be able to plan and design a curriculum better suited to their students' needs that meets all State and Local standards.

Through the district and CTE department various opportunities for professional advancement will be provided to STEM teachers. The University of Texas at El Paso now offers the Engineering Education and Leadership masters to teachers interested in obtaining this degree.

The efforts and initiatives of the T-STEM Academy will also be regularly shared with the campus through the Academy T-STEM coordinator. The coordinator will be part of the department chair and CEIC meetings to provide updates on Academy progress, recruitment, and events. The T-STEM Academy coordinator will take part in SLC meetings with STEM teachers and the SLC coordinator.

Middle school faculty will receive PLTW training during the summer break. This training will give them the necessary certifications needed to be able to teach PLTW classes. Faculty will also receive a vast amount of resources from PLTW to teach classes.

**Describe the current STEM pathways available at the academy.**

The T-STEM Academy provides students with a STEM Pathway in Mechatronics Engineering. In addition to the pathway courses, all of our T-STEM Academy students will graduate with a minimum of 15 college credit hours. In addition, students are encouraged to take Pre-AP or AP courses and will have the ability to take the TSIA during the 9th grade.

The Academy will be expanding in the 2019-2020 school year to include both of our feeder middle schools - Ysleta Middle and Rio Bravo Middle. In the Background section of this application we were unable to show the count for each middle school, and therefore, reported 110 students in 6th-8th grades. This is a combined expected number from both middle schools. YMS is expecting 60 in each grade level and RBMS is expecting 50 in each. We are very excited to be aligning their Project Lead the Way courses and experiences with our T-STEM Academy.

Ysleta Middle School and Rio Bravo Middle School both are implementing courses from PLTW. YMS will offer Design & Modeling and Automation & Robotics during 6th and 7th grades. 8th graders will study Flight & Space and Medical Detectives.

RBMS will offer Technology Applications for 6th grade, Design & Modeling and Robotics & Animation for 7th grade, and 8th graders will study Flight & Space and Medical Detectives.

During their 9th grade year, students are eligible to register for Principles of Applied Engineering.

Their 10th grade year, T-STEM Academy students can register for Robotics I or AC/DC Electronics.

Once they are in 11th grade, T-STEM Academy students will be able to register for AC/DC Electronics or Engineering Design and Presentation.

As they enter their final year of high school, 12th grade, students will be able to register for Engineering Design and Presentation or Robotics II. These courses will help them prepare and complete their design projects along with help build their portfolio.

**Describe how strategic alliances with industry partners and IHEs will support the Academy. The description should include details regarding the role of each IHE, business, and/or community partnership; along with parent/family partnerships and communication conventions with the Academy.**

Ysleta High School has partnered with institutions of higher education such as El Paso Community College in order to offer students the opportunity to complete the 44 Texas core curriculum college credits. Through the partnership, EPCC ensures that students at YHS are receiving approved instruction and earning college credit through their professors via online courses or in person with YHS instructors who have been vetted by EPCC.

The University of Texas at El Paso and the College of Engineering have worked with the T-STEM Academy for several years and provided support in the areas of professional development for teachers and several of their faculty are members for our Advisory Board. They have also hosted our students at UTEP for Engineering department tours and held a summer camp for YHS STEM Academy students. UTEP has also helped the T-STEM Academy bring Lockheed Martin's Engineers in the Classroom program to our campus.

Currently the T-STEM program at Ysleta High School has created a strong partnership with higher education and local engineering partners to begin creating practicums, internships and workforce alignment in our area. One of the most active partners is the REC Foundation. The REC Foundation is a STEM industry partner in the areas of engineering and robotics. They have sponsored VEX Robotics competitions in the area and provided VEX EDR training for STEM teachers. The goal of this partnership is for students to have access to as many competitions, events, and summer internships as possible.

Parents and families are contacted throughout the school year through the Attendance Office, SLC Coordinator, classroom teachers, administration, and/or the STEM Academy Coordinator to update them on student issues, progress, and campus events. As students compete in STEM events, parents are brought in for meetings to review logistics and competition details. Parents are invited to join their students at awards ceremonies for Science Fair at the campus, district and regional levels, as well as at the YHS Academic Awards Ceremony at the end of the school year. The Ysleta ISD CTE department holds House Bill 5 Night in the fall semester at the high school where 8th grade parents and students are invited to learn about the STEM and other CTE programs at YHS and select the pathway they will study in high school. Students who select the STEM pathway and the Academy will be contacted by the STEM coordinator and invited to the STEM Summer Bridger Camp at YHS. Parent meetings will also be held for STEM parents and students during the fall and spring semesters. Social media platforms such as Facebook and Twitter will also be means of communicating with Academy students, parents, and families.

**Describe the Academy's work-based and contextual learning in the curriculum.**

The T-STEM teachers will ensure that students are able to utilize electronic databases to help them with their research skills as they work on writing research plans and abstracts for their group and independent projects, such as those for Science Fair. The district has access to a large number of databases and online resources, including many specifically for STEM. It will be necessary for the student to learn how to use these research tools effectively, as this will be a skill needed for their post-secondary studies and in the 21st Century environment.

During the Advisory period, STEM teachers will incorporate reading days each week to allow students to the opportunity to read and analyze current articles in the STEM fields. Articles may be selected by teachers or brought in by the students. Teachers will also be encouraged to use this as an opportunity to work on presentation skills and science fair practice time.

By having each grade level of Academy students work together on Project Based Learning assignments relevant to the campus over their 4 years of high school - such as becoming a more energy efficient school or installing a solar cell phone charging station - the students will have the opportunity to work on real-life issues affecting them and apply the skills they learn from the curriculum. Students will use the scientific method and engineering design principles to work through the project, research a solution through their classes, utilize technology to help build or create that solution, and have ownership of the final project as they give back to their campus and community.

For WBL opportunities, 6th grade will use century-21 programs to interact with professionals in STEM fields, 7th grade will participate in VEX IQ competitions, 8th grade will participate in VEX EDR competitions, 9th grade will participate in STEAMx and attend Day of the Girl, 10th grade will attend E-Week and compete in VEX EDR competitions, 11th grade will compete in science fair and VEX EDR competitions, and 12th grade will compete in all STEAM competitions and attend shadowing opportunities provided by industry partners.

Ysleta High School will be looking into utilizing STEM curriculum from different sources to better help prepare our students for higher education opportunities. The Academy has also partnered with the REC Foundation, a group focused on proving industry certifications backed by companies in the industry such as Northman Group Foundation, International Technology and Engineering Educators Association (ITEEA), VEX Robotics, Innovation First International, Harris Corporation and CareerSource Brevard among others. In addition, students will also now have the opportunity to get certified in either Solid Works and Autodesk Inventor or both. Students will complete the necessary 50 hours to get certified on either Solid Works on Inventor and both certifications are approved and recognized by the state and the industry.

**Describe the STEM-focused extracurricular activities (field experiences, clubs, and competitions) offered to students.**

The T-STEM Academy students are able to participate in a wide variety of field experiences, clubs and competitions. The Academy currently competes in VEX EDR Robotics, Science Fair, STEAMx events, and offers students the opportunity for field experiences to The University of Texas at El Paso, internships with the El Paso Electric Company and internships with the STEM foundation. The Academy is also looking to expand competitions to include TSA, and Skills USA.

Through Science Fair, STEM Academy students are able to use their individual Project Based Learning assignments or other scientific research projects as submissions to participate. Students who compete at the campus level are able to advance to the district level. This year the campus sent over two dozen projects from YHS to compete at the district level. Students are then able to advance to the Sun Country Regional Science Fair. The campus and STEM students who advanced this year qualified to compete at the Texas State Science and Engineering Fair in San Antonio TX. and a student from YHS will be representing the region at the International Science and Engineering Fair in Pittsburgh, PA.

T-STEM Academy students that are in Robotics I, Robotics II, or in the Robotics club, have the opportunity to compete in the VEX EDR challenges. Students are able to work on their assigned Project Based Learning robot during their Robotics class, advisory and/or after school. This year, 1 of the 4 participating robots advanced to the regional competition.

Upper Rio Grande BorderPlex Solutions, allows students to showcase their engineering projects and knowledge at the STEAMx competitions. In these competitions, STEM Academy students have the opportunity to compete in Architecture, 3D Printings, Applied Technology, Mobile App Designs, Physics/ Engineering Challenges, JAVA Coding, Math Challenges, Business Challenge, and VEX Robotics. These competitions also provide our students to attend workshops to learn up-to-date content on their challenges.

STEM Academy students were also provided with an internship from the El Paso STEM Foundation to work as Robotics Tutors for summer camps at local elementary schools.

The plan for the STEM Academy students, is to provide them with as many rigorous competitions as possible so that they can learn how to work in similar scenarios to their engineering fields. This allows STEM Academy students to push the limits of their ingenuity and help them better prepare for college.

Both Ysleta Middle School and Rio Bravo Middle School offer an after-school program called 21st Century which is STEM focused and allows students to work on STEM-related projects. Both schools are also planning to participate in the UTEP MAA Drone program in collaboration with the UTEP Center for Space Exploration and Technology Research (cSETR), furthering students' exposure to STEM through the Academy.