



BEL AIR H S T-STEM 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

School Affiliation

BEL AIR H S

CDC #: 071-905-001

Region:

Mailing Address (Line 1): 731 YARBROUGH DR

Mailing Address (Line 2):

City, State, Zip: EL PASO, TX 79915

BEL AIR MIDDLE

CDC #: 071-905-055

Region:

Mailing Address (Line 1): 8040 YERMOLAND DR

Mailing Address (Line 2):

City, State, Zip: EL PASO, TX 79907

Academy Information

T-STEM Academy Name:

BEL AIR H S T-STEM Academy

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

Yes

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
7	90	BEL AIR MIDDLE (071905055)
8	80	BEL AIR MIDDLE (071905055)
9	60	BEL AIR H S (071905001)
10	77	BEL AIR H S (071905001)
11	61	BEL AIR H S (071905001)

Contacts

Business Partner

Affiliation: Carollo Engineers
Job Title: Engineer
Full Name: Ms. Sanaan Villalobos
Email: svillalobos@carollo.com
Phone Number: 915-227-4444

Superintendent

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

Applicant

Job Title: STEM Coordinator
Full Name: Mrs. Julie Perez
Email: jperez@yisd.net
Phone Number: 915-434-2090

Business Partner

Affiliation: Keats Southwest
Job Title: Manager
Full Name: Mr. Mario Ramirez
Email: marior@keatssw.com
Phone Number: 915-599-2950

IHE Liaison

Affiliation: The University of Texas at El Paso
Job Title: Director, Engineering Student Services
Full Name: Mr. Gabby Gandara
Email: gabby@utep.edu
Phone Number: 915-747-6945

IHE Liaison

Affiliation: El Paso Community College

Job Title: Dean of Dual Credit and ECHS

Full Name: Ms. Toni 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)
- Business and Industry
- Public Services
- Arts and Humanities
- Multi-disciplinary Studies

Certificates

Does this academy offer Associate Degrees to students?

No

TSIA

Does this academy administer the TSIA exam?

Yes

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/3707>

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

<https://www.yisd.net/domain/3707>

Provide a link to the academy's master schedules.

<https://www.yisd.net/domain/3707>

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

<https://www.yisd.net/domain/3707>

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/3707>

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

<https://www.yisd.net/domain/3707>

Free-Response

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

The academy will recruit, support and retain highly qualified teachers by way of seeking those who have the appropriate credentials in the area of need. The candidate must have post-secondary degree education with a number of years of experience in the field.

Support will be provided through annual training and professional development for both new teachers and existing. Job-a-like (externships) will be offered in partnerships with local industry businesses. The purpose is to keep educators well informed of industry changes. This allows for curriculum alignment and consistency of program goals.

The campus will retain teachers by creating an environment that is conducive to a balanced climate and culture where they are provided an opportunity for leadership and growth by way of incorporating collaboration where teachers are allowed to give feedback on planning and development (decisionmaking)-giving them a sense of ownership.

Describe the current STEM pathways available at the academy.

Bel Air High School offers three pathways directed in the areas of Architecture, Engineering, and Computer Science. All students will be given an opportunity to select a pathway that is affiliated with either a certification - career ready or higher level course (AP/DC) credit - college ready thereby empowering students to develop essential skills such as problem solving, critical and creative thinking, communication , collaboration and perseverance.

Architecture Pathway: Designed for students who will learn design structure relevant to today's modern architecture. Students will acquire knowledge and skills utilizing various materials and tools that require technical logistics, geometry, building techniques, functional design and ergonomics. The pathway is a foundation for students who want to pursue a degree in architecture and design or skill development for the workforce.

Computer Science Pathway: Designed for students who are provided with the foundation and applicable understanding of computer science that can be used in further pursuit of a computer science degree or in the workforce. The pathway encompasses basic programming in JavaScript, advanced features of the Python language - building simple console-based games. This leading into foundational concepts of computer science that explores the internet digital information, programming and data.

Engineering Pathway: Designed to engage students in compelling, real-world challenges that help them become better collaborators, thinkers and innovators. Project Lead The Way is a focal component of the pathway and is implemented in the following courses: aerospace, civil, electrical, mechanical engineering and robotics.

Middle School - PLTW: Gateway to Technologies

Automation Robotics

Design and Modeling

Medical Detectives

Green Architecture

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.

The alliances with industry partners and IHE's will be to incorporate members to serve on our advisory board, internships, field trips for our students, and externships for our STEM teachers.

IHE: Bel Air 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 core curriculum college credits. Through the partnership, EPCC ensures that students are receiving approved instruction and earning college credit through their professors via online courses or in person with campus instructors who have been vetted by EPCC.

Also, the partnership will allow student tours and accessibility to labs for project based learning and research and internships. Open opportunities to apply and/or participate in Engineering program/camps for possibility of recruitment. and admissions. Example, field trips to the University of Texas at El Paso (UTEP) - Engineering.

Industry/Business: Opportunity for internships/externships and employment with on-site based learning/training for both teachers and students. Business will provide an insight to real-world challenges and solutions and offer feedback to campuses on changes in industry operation, structure and expectations., and curriculum alignment.

Parent/family: Communication will be in form of our campus HB5 presentations in which they will be exposed to programs/pathways offered at Bel Air High School. Academy is exploring adding a T-STEM Academy Night and Newsletter.

Recruitment: Events will be aligned with IHE's and industry based participation. Information will be disseminated through the following events:

- HB5 Night (student led)
- Middle School Campus visit (student led)
- Career Day (Industry/Business presentation)
- Engineering Day (student led)

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

The work-based and contextual learning curriculum will be phased in as follows:

7th - STEM Clubs/In-Class activities

8th - Career Exploration

9th - Guest Speakers

10th - Field Trips

11th - Job Shadowing

12th - Internships/Capstones

STEM elective teacher have been implementing PBL on a regular basis. Some examples include;

Civil Engineering:

Shed Design

Residential House Design

Water Supply System Design

Engineering Science

Test Bed Design and Programming

Gear Ratios Build and Test

Simple Machines Project

Build and Code a machine using sensors: (elevator, soccer goal, wench, cookie conveyor belt)

Architecture:

Custom door and windows

Custom deck

Full or 3/4 bathroom

Custom kitchen,

Floor plan

Residential wall model, frame, interior and exterior details

Engineering Design and Presentation:

Variety of blueprints,

6 view print and random number generator,

Homemade rocket with assembly print,

Formula 1 CO2 race car,

Hand cranked wooden toy with sub assembly prints

Engineering Design and Problem Solving:

Rube Goldberg contraption of 10 steps minimum and using at least 5 simple machines,

CO2 dragster and blueprint, 1/8"x 1/8" balsa crane to test efficiency,

Independent project in the STEAM field

Architecture Design,

Draft (floor plan and elevations) and build a scale model of an artists loft/gallery for a company in San Francisco

EDD

E-waste project

More efficient motor project

Speaker system project

Middle School:

Design and Modeling:

Foot Orthosis for Children with CP.

Automation and Robotics:

Drag Car Race, Automated Toll Booth, and MANY more.

Green Architecture:

Balsa wood shed,

Revit plans for their room.

Medical Detectives:

Dissect and label a sheep brain.

A goal for our Academy is to continue STEM teacher training on project-based learning (PBL) this summer. For the purpose of growing our PBL into Industry panels presentations.

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

Our engineering students have provided STEM focused activities to our feeder schools in Computer Science and Robotics throughout the 2017 – 2018 school year as well as the 2017 Engineering Summer Camp. Students also experienced field trips to our local university's Engineering and Computer Science program and visited community businesses that cater to the Engineering discipline. UTEP Engineering Day - activity based, student led pathway explorations.

Students are also exposed to work field experience with Habitat for Humanity to build homes that are located in the El Paso area.

Club/Competition

Tech Club

TSA competition-State qualifiers

City-Wide Tech competition

UIL - Computer Science Regional qualifiers

Middle School: Robotics club

UIL Science/Math Local

Robotics/VEX Competition